

UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF WISCONSIN

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OSWALD SUOJA, : W.D. WI CASE  
 : 3:99-cv-475  
Plaintiff, :  
 :  
vs. :  
 :  
OWENS-ILLINOIS, INC, :  
 :  
Defendant. :  
-----

Wednesday, November 25, 2015

- - -

Trial deposition of ARTHUR L. FRANK,  
M.D., PH.D., taken pursuant to notice, held at Nesbitt  
Building, 3215 Market Street, Suite 640, Philadelphia,  
Pennsylvania, commencing at 8:10 a.m., before Nicolle  
J. Tornetta, Court Reporter - Notary Public there  
being present.

- - -

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## I N D E X

## WITNESS

Arthur L. Frank, M.D., Ph.D.

(Witness sworn.)

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(Whereupon, Exhibit Plaintiff-93, Curriculum Vitae, was pre-marked for identification.)

ARTHUR L. FRANK, M.D., Ph.D., having  
been duly sworn, was examined and testified as  
follows:

## DIRECT EXAMINATION

BY MR. McCOY:

Q. Doctor, would you begin by giving us your full name and spell your last name for us?

A.        Yes, my name is Arthur Leonard Frank,  
F-R-A-N-K.

Q. And what is your present occupation?

A. I'm a physician.

Q. And what position do you hold?

A. I currently hold here at the Drexel University School of Public Health the position of professor of public health and chair emeritus of the department of environmental and occupational health. I'm also a professor of medicine in the pulmonary division of the department of internal

1 medicine. And I'm also a professor of civil,  
2 architectural, and environmental engineering, all  
3 of those here at Drexel.

4 MR. CASMERE: Bob, I'll stipulate to  
5 the CV and his qualifications as a medical doctor,  
6 so we can skip all that, and Judge Crocker can read  
7 it at his leisure.

8 MR. McCOY: Right. We'll just be  
9 brief in terms of qualifications. We'll list out a  
10 few of them for highlights because the CV is so  
11 long and I want to get out the key points.

12 BY MR. McCOY:

13 Q. But this is Exhibit 93. This is the -- for  
14 the record, Doctor, would you identify that for us?

15 A. It's my most up-to-date and recent CV of  
16 November 2015, this month.

17 Q. And just going forward, a little bit with  
18 your credentials. Your educational background  
19 that's relevant for the purposes of today?

20 A. After graduating from college, I was  
21 fortunate to be admitted to the first class at the  
22 Mount Sinai School of Medicine in New York. It was  
23 also that year, in 1968, that I met Dr. Irving  
24 Selikoff, head of the environmental sciences  
25 laboratory already recognized in 1968 as a world

1 expert in the area of asbestos and asbestos-related  
2 disease.

3 I graduated four years later with my  
4 M.D. degree from Mount Sinai. I stayed on at the  
5 Mount Sinai Hospital to do my first year of  
6 training in internal medicine, that would be  
7 general adult medicine. I left after that first  
8 year to become a commissioned officer in the United  
9 States public health service, a commission that I  
10 ultimately held for some 37 years, leaving with the  
11 equivalent rank of Navy captain or an Army colonel.  
12 I served on active duty between 1973 and 1975 at  
13 the National Cancer Institute, studying the effects  
14 of asbestos on tissue.

15 When I returned to Mount Sinai in  
16 1975, over the next two years, I finished my  
17 training in internal medicine. I also did my  
18 clinical training in the field of occupational  
19 medicine, and I had also received my second  
20 doctoral degree, a Ph.D. in biomedical sciences  
21 from the City University of New York. The subject  
22 of my original research had to do with the effects  
23 of asbestos on certain kinds of tissues. We looked  
24 at animal tissues, hamsters, bovine tissue. We  
25 also looked at some human tissue and its biological



1 effects. So that would be my formal education.

2 Q. Have you had training in the area of  
3 toxicology?

4 A. I have to be a board certified specialist  
5 in occupational medicine, which looks at exposures  
6 at workplaces and then tries to prevent disease by  
7 identifying hazards, you have to have training in  
8 toxicology. At one of my other universities that  
9 I've served at, I was actually, among other things,  
10 a professor of toxicology as well.

11 Q. And have you had training in the field of  
12 epidemiology?

13 A. I have. I'm not an epidemiologist in the  
14 sense that I don't do it full time, but, again, to  
15 be board certified in occupational medicine, one  
16 has to have additional training beyond what most  
17 physicians get in epidemiology. I've taught  
18 epidemiology to medical students and I have done  
19 epidemiological research virtually all of my life.

20 Q. Have you done epidemiological research that  
21 involves asbestos diseases?

22 A. Yes, I started working with Dr. Selikoff,  
23 as I said, in 1968. I worked throughout medical  
24 school and my residency. We looked at a wide  
25 variety of populations exposed to asbestos, that

1 would have been insulators, such as Mr. Suoja. We  
2 looked at shipyard workers. We looked at plumbers  
3 and pipefitters. We looked at elevator installers.  
4 In my career, I've looked at sheet metal workers  
5 and others.

6                   Currently I still have research  
7 going. I have a project in Texas in a plant that  
8 makes nuclear weapons, and one of the many  
9 exposures the workers have is to asbestos. And I'm  
10 leaving in less than two weeks for a trip to both  
11 Sri Lanka and India. And in Sri Lanka, I'll be  
12 giving a paper on asbestos and collecting some data  
13 with some colleagues there that we've been doing a  
14 joint project on asbestos disease in groups of  
15 individuals who make asbestos cement products,  
16 which are common in that part of the world. So I'm  
17 still doing asbestos research 47 after I started  
18 with Dr. Selikoff.

19 Q.       Have you served on any government panels  
20 that involve asbestos-related matters?

21 A.       Very many, actually. I served on the board  
22 of scientific counselors for NIOSH, the National  
23 Institute for Occupational Safety and Health, and  
24 the director appointed me to the asbestos and  
25 man-made fibrous subcommittee. I've served on the

1 board of scientific counselors. Now, these are the  
2 highest level advisory bodies to the directors of  
3 those organizations to the National Center for  
4 Environmental Health at the CDC, the Centers for  
5 Disease Control, in Atlanta. We dealt with  
6 asbestos issues there. Here in Pennsylvania right  
7 now, I chair the Environmental Justice Advisory  
8 Board and we're dealing with a number of issues  
9 regarding asbestos, but one not very far from  
10 Philadelphia here in a place called Ambler,  
11 A-M-B-L-E-R, Pennsylvania, where there is literally  
12 90-foot piles of asbestos out there. I also serve  
13 on the Air Pollution Control Board for the City of  
14 Philadelphia right now, and asbestos is one of the  
15 issues that we regulate in that setting.

16 So I have served in government  
17 committees in this country and I have advised  
18 governments overseas about the hazards of asbestos,  
19 including such diverse places such as Egypt and  
20 Israel and Thailand and India and China, Brazil. I  
21 testified in front of the Supreme Court of Brazil  
22 on the hazards of asbestos, so I've been a  
23 government advisor at many levels over the years.

24 Q. Okay. You mentioned you have board  
25 certification in the field of occupational

1 medicine?

2 A. And in internal medicine, yes, sir.

3 Q. Okay. And let's talk about the field of  
4 occupational medicine. What have you done in terms  
5 of investigation and assessment of workplace  
6 diseases? Is that a part of the practice?

7 A. That's what one does. I've worked in many  
8 settings. I've certainly worked clinically  
9 examining workers with a wide variety of exposures  
10 in many, many different work settings. I've been  
11 in many work settings, having been hired by  
12 companies. For example, when I taught at the  
13 University of Kentucky for 11 years, I ran the  
14 medical department for a coal company. I was  
15 responsible for 1,000 coal miners at one point, so  
16 I went underground, I went to strip mines, I have  
17 done consultations with many companies and have  
18 been in many workplaces from steel mills to power  
19 plants to manufacturing facilities of all kinds.  
20 It's what a doctor like myself does in addition to  
21 seeing patients and making determinations of  
22 asbestos and other diseases in people.

23 Q. And the investigation and assessment of  
24 these workplace diseases, that's including the  
25 asbestos?

1 A. Very much so. I've been in China -- I've  
2 been going to China since 1991. I studied three  
3 asbestos factories there, toured all of them, where  
4 they made a wide variety of asbestos products and  
5 then we studied the workers in those factories, so  
6 it is the kind of thing that I go out into the  
7 setting as well as doing the epidemiological  
8 research or clinical research.

9 I just had a paper published earlier  
10 this year on the first reported case of a  
11 mesothelioma in Mongolia with some colleagues over  
12 there, having been in Mongolia for the last three  
13 years now teaching and doing research.

14 Q. And your work in the  
15 investigation/assessment of the workplace asbestos  
16 disease, that goes back to when you were at Mount  
17 Sinai?

18 A. It goes back to 1968, yes.

19 Q. What's the main goal in the field of  
20 occupational medicine?

21 A. To prevent disease. To first identify  
22 causes of disease of various kinds, be it from  
23 exposure to asbestos or benzene or other chemicals,  
24 and then to take that knowledge and prevent  
25 exposures. And there are many ways to do that so

1 that future individuals do not develop those  
2 diseases.

3 Q. Have you been involved in the development  
4 of programs to control occupational diseases?

5 A. Yes. I mean, that's what I've done when  
6 I've worked for various companies. Coal companies,  
7 I've been a consultant to Ashland Oil when I was in  
8 Kentucky. I've been in any number of workplaces  
9 and advise them about hazards, some having to do  
10 with asbestos, some having to do with things like  
11 ergonomics, that's man machine or person machine  
12 interactions. So there are a wide variety of  
13 things that I've designed programs and made  
14 suggestions to companies.

15 Q. Okay. Now, with specific reference to  
16 asbestos disease, how do you go about doing that,  
17 an investigation and assessment of that?

18 A. Well, asbestos is a little bit different  
19 than a lot of other things. We've known about the  
20 hazards of asbestos for well over a century. The  
21 modern literature on that -- I mean, we're not  
22 talking about the Romans that wrote about the  
23 hazards of asbestos 2,000 years ago. I don't think  
24 many folks still read Pliny the Elder and the  
25 original Latin.

1                   That said, the modern history goes  
2 back to a publication in Great Britain in the late  
3 1890s talking about the hazards of asbestos. So  
4 one goes into a setting, looks where asbestos is  
5 used. For example, I was a consultant to Toyota  
6 when they opened their first automobile plant here  
7 in the United States, and that was back in the  
8 1980s, again, in Kentucky, and one in the things I  
9 advised them was to stop using asbestos brakes on  
10 cars, putting their own workers at risk from the  
11 handling of asbestos products as well as the  
12 downstream exposures that auto mechanics and  
13 do-it-yourselfers would have from handling asbestos  
14 brakes, which I knew to be a hazard from earlier  
15 research I had done at Mount Sinai.

16                   So you make an assessment and then  
17 you suggest either a substitution of a less  
18 hazardous material, which we could have done in  
19 that case, or you put in good ventilation to  
20 properly take up the dust that gets formed. And  
21 then as a last resort, you use personal protective  
22 equipment, you put workers in respirators or other  
23 kinds of air-supplied equipment so that they don't  
24 breathe the hazardous materials.

25       Q.       Okay. In terms of the actual investigation

1 of the disease that was done, and, again, I'd like  
2 to keep the references to asbestos here, how --  
3 what role would something like animal research or  
4 other types of research play in that?

5 A. It all has a role. I think in my career,  
6 I've had the good fortune of doing everything that  
7 starts with cell cultures to organ cultures, that's  
8 pieces of tissue. They give us information that  
9 you can't get easily or as reproducibly from using  
10 animals. I've done animal research with asbestos,  
11 I've done case reports like that case out of  
12 Mongolia, and then I've done epidemiological  
13 studies or collected epidemiological data for  
14 others with regard to asbestos. So I've done all  
15 those kinds of studies, and each one of those types  
16 of studies informs one about different aspects;  
17 about the toxicology or cell interactions or the  
18 rapidity with which asbestos can interact with  
19 tissue and cause abnormalities. You can't do that  
20 in people, but you can do that in animals or in  
21 culture systems.

22 Q. What can you do as far as studying people  
23 in asbestos disease?

24 A. You can -- at this point in time --

25 Q. I'd like to take it back to the earlier



1 time.

2 A. Well, in the earlier times what people  
3 started doing is looking at those people that  
4 worked with asbestos. And the first disease that  
5 was described is what we today call asbestosis. It  
6 didn't get that name until 1924 by studying what  
7 occurred to people handling asbestos and they would  
8 get fibrosis of the lung often severe enough to  
9 kill them.

10 There was a written document in 1907  
11 about a worker who was the last of ten young men  
12 that had started in an asbestos textile fragment  
13 factory. Merewether and Price in 1930 had a very  
14 seminal paper, it was a physician working with an  
15 industrial hygienist, and what they wrote basically  
16 is as follows: They said that men get disease,  
17 women get disease, different products can give you  
18 disease. What you need to do is provide good  
19 ventilation. If you can't prov -- or you  
20 substitute for another product. If you can't  
21 provide good ventilation, you provide respirators.  
22 And they even went so far as to say the regular  
23 respirators they had in those days were not very  
24 easy to wear and so you might have to consider  
25 supplying air-supplied hoods. This was 1930.

1           The other thing that they did is  
2       they talked about educating workers about the  
3       hazards of the materials they work with. I think  
4       the phrase they have in there has to do with a sane  
5       appreciation of the risk. You need to educate  
6       workers about the hazards of materials that they  
7       are working with.

8           MR. McCOY: For the record, I'm  
9       going to mark copies, Exhibit 201.

10          Ed, I'm going to start our  
11       Plaintiff's treatise things as 201, so this will be  
12       equivalent of like an 80318.

13          MR. CASMERE: Okay.

14                       - - -

15               (Whereupon, Exhibit Plaintiff-201,  
16       Report on Effects of Asbestos Dust on the Lungs and  
17       Dust Suppression in the Asbestos Industry by E. R.  
18       A. Merewether, M.D., and C. W. Price, was marked  
19       for identification.)

20                       - - -

21       BY MR. McCOY:

22       Q.       So this is Plaintiff's Exhibit 201. Is  
23       that a copy of the Merewether 1930 -- Merewether  
24       and Price 1930 publication you've been talking  
25       about, Dr. Frank?

1 A. It is. And on Page 17, there's a paragraph  
2 No. 6 on preventative measures. And to use their  
3 specific phrase: They also include the education  
4 of the individual, as in other dangerous trades, to  
5 a sane appreciation of the risk, and to his  
6 personal responsibility in the prevention and  
7 suppression of dust.

8 And this was a paper talking about  
9 -- only about asbestos, so these were important  
10 appreciations about the hazards and how to prevent  
11 them as far back as 1930.

12 MR. CASMERE: I just want to put an  
13 objection on the record that we are getting far  
14 afield of qualifications at this point, and you're  
15 way beyond the Rule 26 disclosure of this witness.  
16 So to the extent you're going to continue to delve  
17 into specific studies on state of the art, I would  
18 like a continuing objection on Rule 26 and  
19 disclosure.

20 MR. McCOY: Okay. I mean, you can  
21 have a continuing objection on Rule 26.

22 MR. CASMERE: Okay. Thank you.

23 BY MR. McCOY:

24 Q. Dr. Frank, just briefly, this publication  
25 is titled, Report on the Effects of Asbestos Dust

1 on the Lungs and Dust Suppression in the Asbestos  
2 Industry. And who are Merewether and Price?

3 A. Dr. Merewether was an occupational  
4 physician, and Mr. Price was an industrial  
5 hygienist.

6 Q. And this was a study out of Great Britain?

7 A. Yes, sir.

8 Q. Published in the --

9 A. It was a publication from Her Mag -- His  
10 Majesty's stationary office. It was an official  
11 government publication.

12 Q. Okay. So going forward, then, other than  
13 what you've described, are there any other  
14 significant professional and science organizations  
15 that you'd like to mention that you are or have  
16 been a part of relating to asbestos?

17 A. Yes. I mean, a lot of the organizations I  
18 belong to look at a much wider series of topics  
19 than asbestos, but the American Public Health  
20 Association has dealt with it, I'm a member of  
21 that. The American Thoracic Society has published  
22 on it. The Collegium Ramazzini, which is an  
23 organization based in Italy, limited by its charter  
24 to 180 physicians and scientists, I was elected to  
25 fellowship back in 1983, they have often dealt with

1 asbestos issues. In fact, just in the past month  
2 or so, they came out with three new statements on  
3 the hazards of asbestos, and I've often spoken at  
4 our annual meeting. There's an annual meeting held  
5 in Italy on the subject of asbestos.

6 Q. Have you published in the field of  
7 asbestos?

8 A. I have. If one looks at my CV, there are  
9 about 200 publications and about half of them,  
10 about 100 of them, have something to do with  
11 asbestos.

12 Q. Have you been involved with work relating  
13 to the cause of a disease that would be one that  
14 might be asbestos related?

15 A. Yes, I mean, I've written about all the  
16 diseases; asbestosis, other nonmalignant diseases,  
17 as well as the various cancers that are caused by  
18 asbestos.

19 Q. Would that include mesothelioma?

20 A. Yes, sir.

21 Q. Now, just based on your past experience,  
22 most of your work when you do lawsuit consulting or  
23 testifying has been for the attorneys that  
24 represent the persons injured?

25 A. The vast majority, yes, sir.

1 Q. Okay. And you've had other cases with my  
2 firm before, right?

3 A. I have. I've been doing this work for more  
4 than 35 years.

5 Q. What's your compensation per hour for your  
6 work currently?

7 A. Right now, the fee charged for my time is  
8 \$425 an hour.

9 Q. Where does that money go to?

10 A. Every penny goes here to Drexel University.  
11 And I've worked at four universities in my career,  
12 and in every case, every penny has always gone to  
13 the university. I've never put a penny in my  
14 pocket.

15 That said, that doesn't mean I  
16 haven't benefitted from it. I've been the  
17 department chair in three universities for over  
18 30 years and the monies, either some or all of it,  
19 were allowed to be used by me for the betterment of  
20 the educational endeavor that being at a university  
21 involves.

22 So here, for example, most of that  
23 money was paid out for extra faculty, extra  
24 secretarial staff, research assistance for the  
25 junior faculty that I was responsible for. I also

1       tend to do a fair amount of international work, and  
2       over the years these funds have paid for me to be  
3       able to travel internationally and teach and do  
4       research in other countries as well, so I have  
5       benefitted from it, but I've just never put a penny  
6       in my own pocket in 35 years plus.

7                               - - -

8                       (Whereupon, Exhibit Plaintiff-140,  
9       What is Asbestos Document, was marked for  
10      identification.)

11                           - - -

12      BY MR. McCOY:

13      Q.        Doctor, I'm going to give you Exhibit  
14      No. 140, and we'll get a color copy of this, but do  
15      you -- from the black and white, do you recognize  
16      what those are?

17      A.        Yes. These appear to be asbestos fibers in  
18      various settings. The bottom right is an ora body  
19      that would be asbestos. Just above it would be a  
20      single -- a large fiber and smaller fibers. To the  
21      left of the ora body picture would be what looks to  
22      be fibers in tissue. So, yes, that's what these  
23      would be representing.

24      Q.        Okay. And what is asbestos?

25      A.        Asbestos is a commercial term. It refers

1 to six different fibers that are naturally found in  
2 nature. When I say "naturally found," they're not  
3 made or manufactured. They come in two varieties;  
4 the first group is called the amphiboles, they are  
5 made up of five fiber types of the six, they are  
6 all chemically different one from another. They  
7 have different colors; there's the brown, which is  
8 the amosite, and the blue, which is the  
9 crocidolite. They're characterized by being  
10 straight and needle like in their appearance. Then  
11 the other form is called chrysotile. Chrysotile is  
12 the so-called white asbestos. It's made up about  
13 90 or 95 percent of all of the asbestos used in the  
14 United States and in the world. It is called the  
15 serpentine form because when you look at it under  
16 low magnification, the fibers are wavy, so they  
17 look like a worm or a snake, and, therefore, get  
18 the name serpentine. So they are chemically each  
19 different from the other, but they are all fibers  
20 and all have been shown to cause disease.

21 - - -

22 (Whereupon, Exhibit Plaintiff-141,  
23 Picture of Macrophages with Asbestos Fibers  
24 present, with attachments, was marked for  
25 identification.)



— — —

Q. And Exhibit No. 141, again, that's the black and white. We'll substitute a color.

Do you recognize that one?

A. Yes, this is a high powered view of what looked to be macrophages probably in the lung with asbestos fibers present.

Q. Okay. What happen -- first off, I want to ask you: Are most asbestos fibers visible?

A. No, most of them are not visible to the naked eye.

Q. Why is that?

A. Because they're extremely small. You can see very large bundles of fibers, as you see in some of those pictures, but, again, most of those pictures are microscopic views. Even electron microscopic views are needed to see some of them. Ordinary light microscope views will not show you all of the fibers.

Q. What happens to asbestos fibers that are inhaled by a person?

A. Well, they tend to go into two directions. When you inhale a snootful of asbestos, some will go down in the lung and it will get moved out of the lung in many, many different ways. Some of it

1 gets brought back up through what's called the  
2 mucociliary escalator. Some will be gobbled up by  
3 macrophages, they're sort of like Pacmen of the  
4 lung. Some will be moved out to the pleura. It's  
5 in the pleura where they will cause pleural  
6 mesotheliomas. Some of them will go down through  
7 the diaphragm that separates the chest cavity from  
8 the abdominal cavity and the fibers will end up  
9 through the diaphragm down in the abdominal cavity.

10 The other thing that happens is you  
11 swallow asbestos, and when it gets into the GI  
12 tract, it has the ability to cause cancer on its  
13 way down in the esophagus, the stomach, the  
14 colorectal cancers, but one of my teachers at Mount  
15 Sinai, Dr. Suzuki, had some beautiful pictures  
16 showing how the asbestos fibers went from inside  
17 the bowel lumen -- think of it like a pipe -- and  
18 the fibers would poke through the pipe and end up  
19 coming out into the surrounding tissue. And if it  
20 does that in the intestines, which is where he  
21 showed it, it will end up in the peritoneal cavity,  
22 the abdominal cavity, and that's where you get  
23 peritoneal mesotheliomas from the presence of  
24 asbestos.

25 Q. The abdominal cavity is also referred to as

1 the peritoneal cavity?

2 A. Yes, sir.

3 Q. And what's the difference between the --  
4 the chest cavity, is that referred to as the  
5 pleura?

6 A. Well, the lining on the inside of the chest  
7 cavity -- mesotheliomas, which is the disease that  
8 is of interest to us today, arises in what we call  
9 a lining or connective tissue. The inside of the  
10 chest wall and the outer covering of the lung are  
11 mesothelial tissue, and they will be sites where  
12 mesotheliomas will occur. The covering around the  
13 heart tissue called the pericardium, meaning around  
14 the heart, mesotheliomas can arise there. Those  
15 are pretty rare, but they do occur. They also --  
16 about 90 percent arise in the pleura. About ten  
17 percent arise in the peritoneal cavity because the  
18 lining tissue of the abdominal wall and the  
19 connective tissue between the tissue are  
20 mesothelial tissues. And then in males, you will  
21 also get mesotheliomas in the testicular area  
22 because fibers anatomically can get down into the  
23 testes and the tissues surrounding the spermatic  
24 cord can develop a mesothelioma as well.

25 Q. The organs within the abdominal or

1 peritoneal cavity, what are those?

2 A. That's the standard sort of, you know,  
3 belly organs; your stomach, your small intestine,  
4 your large intestine, your liver, your gall  
5 bladder, your spleen, those are all found inside  
6 the peritoneal cavity.

7 Q. Does a person taste, feel, or smell  
8 asbestos fibers when they enter someone's body?

9 A. We've already established you can't see  
10 them, you don't taste them, you don't feel them.  
11 They have no warnings signs or, you know, methods  
12 to let you know that you're being exposed. You can  
13 be exposed to fairly high levels and not see them  
14 in the air. And if you see asbestos fibers or dust  
15 from a product, then the levels are really quite  
16 high.

17 But, no, you have no warning sign  
18 that you're being exposed. Not like, you know,  
19 natural gas on your stove that they put, you know,  
20 stinky stuff in it so it smells like rotten eggs,  
21 you know the gas is on.

22 Q. Of the types of asbestos fibers that you  
23 mentioned, which of those will cause mesothelioma?

24 A. All of them. There's both animal data and  
25 human data from populations exposed to the

1 individual amphiboles as well as chrysotile. They  
2 will all cause mesothelioma.

3 Q. And what is mesothelioma?

4 A. It is a cancer of these lining tissues.  
5 They come in two varieties; there's so-called  
6 benign mesotheliomas, they're extraordinarily rare.  
7 In my career, I've seen about three or four or  
8 five of them through the records and such that I  
9 reviewed. Most of them -- and they are still a  
10 rare cancer. There's about 3,500 or 4,000 a year  
11 in the United States. And as I said, 90 percent of  
12 these mesotheliomas, the cancer of the lining  
13 tissue, will be in the chest, about ten percent in  
14 the abdomen, and about one percent or less in the  
15 -- around heart or the testes.

16 Q. And about how many cases of mesothelioma  
17 have you reviewed?

18 A. In the years that I've been doing the  
19 medical/legal work and my research work, both here  
20 with Selikoff and my own work around the world and  
21 patients that I've seen, 5,000, maybe as many as  
22 10,000.

23 Q. And what is the size range for these  
24 asbestos fibers that would be inhaled?

25 A. You can inhale fibers in a sense of any

1 size. Large ones will get filtered out in the nose  
2 and the hairs of the nose or the upper airway, even  
3 in your mouth. Fibers that are generally between  
4 about two or three microns and 15 or 20 microns are  
5 the ones that are going to make it down in the  
6 lung. The ones that you swallow can be much larger  
7 as well.

8 Q. What's a micron?

9 A. A micron is one one-thousandth of a  
10 millimeter. Extremely small, that's why you can't  
11 see them with the naked eye.

12 Q. So how is it that mesothelioma is caused by  
13 asbestos?

14 A. Well, exactly how it's caused, we don't  
15 understand. We don't know what the biological  
16 mechanism is by which it alters the DNA of cells.  
17 Cancer is a process whereby the DNA of individual  
18 cells are altered. For some carcinogens,  
19 cancer-causing agents, that is, we know what the  
20 mechanism is, they knock off electrons or the  
21 chemicals interdigitate among the structure of the  
22 so-called double helix.

23 For asbestos, we don't really know  
24 what the mechanism is, but we do know without  
25 question that the different types of asbestos will

1 cause a wide variety of cancers, including  
2 mesothelioma.

3 Q. When you say affects the DNA, that's a part  
4 of the cancer process, right?

5 A. Yes. The cell has essentially two parts;  
6 there's the nucleus, the central part of the cell,  
7 and inside that is a substance called DNA, which  
8 carries the genetic material for that cell. Then  
9 there's the outer part of the cell, everything but  
10 the nucleus, and that has proteins and other  
11 chemicals in there, and it's in that part of the  
12 cell that the cell functions in the way that cell  
13 is supposed to. For example, if it's an  
14 insulin-producing cell or a  
15 thyroid-hormone-producing cell, but it is the  
16 nucleus that carries the information about cells  
17 being able to replicate and divide and make more of  
18 themselves. And when that process goes wrong,  
19 several things can happen; the cell can die, the  
20 cell can become a mutated cell, but one of the  
21 things that happens is that they become cancer  
22 cells and then grow uncontrollably.

23 Q. When you say a cancer cell, is that a  
24 mutated cell?

25 A. It's a mutated cell. The DNA gets altered

1 so that it now has a mutation, a change in the  
2 structure from normal to something that's abnormal,  
3 and when the cells reproduce, the cells just keep  
4 growing, which is not how body cells are supposed  
5 to function.

6 Q. What does it take in terms of asbestos  
7 fibers to cause a mutation?

8 A. We don't know how many fibers it takes to  
9 cause one mutation or how many mutations are needed  
10 for mesothelioma. People have studied that, let's  
11 say, for lung cancer, and data came out a few years  
12 ago that there were 23,000 mutations that were  
13 needed for a normal cell to end up as a cancer  
14 cell. So we suspect that for mesotheliomas, again,  
15 there need to be many -- we don't know how many --  
16 many different mutations.

17 The difference between cigarettes  
18 and asbestos, and, again, we don't know the  
19 mechanism for the asbestos, is that when you inhale  
20 the hazardous materials of the carcinogens in  
21 cigarettes, they are metabolized, the body gets rid  
22 of them. In fact, it is that very metabolic  
23 process that causes certain chemicals to form which  
24 are highly -- have a high ability to cause  
25 mutations.



1                   Asbestos: A fiber may get near a  
2 cell, may cause a mutation, we're not sure exactly  
3 how, and that fiber doesn't dissolve or go away, it  
4 stays there sometimes inside the cell possibly for  
5 long periods of time, and the same fiber may cause  
6 additional mutations or additional fibers that come  
7 in or that the cell is exposed to may do it as  
8 well. We just don't know.

9           Q.       So the development of the actual first  
10 cancer cell, first mesothelioma cancer cell, is  
11 that a separate type of disease process or a single  
12 unified process?

13          A.       It's a single unified process of turning  
14 from a normal cell into a cancer cell. It's one  
15 process. You end up with a malignancy. You may  
16 have multiple steps in getting there, but it's the  
17 same process we would see for any single kind of  
18 cancer that would be formed from any kind of  
19 cancer-causing exposure.

20          Q.       So in terms of this being a single process,  
21 are you referring to all the exposures ultimately  
22 creating just a single disease process?

23                   MR. CASMERE: I'm going to object to  
24 the form, foundation, Rule 26. There's already  
25 rulings and orders on this and we're getting pretty

1 far afield, so I'm going to assert those objections  
2 and a continuing objection to asking those types of  
3 questions.

4 MR. McCOY: I don't think there's  
5 been any rulings on this. This is not the each and  
6 every exposure that was stipulated to.

7 BY MR. McCOY:

8 Q. But my question is, in terms of the  
9 different exposures, do those create separate  
10 disease processes or is this a single process?

11 MR. CASMERE: Will you give me the  
12 continuing objection, so I don't have to keep  
13 interrupting the doctor?

14 MR. McCOY: Sure.

15 MR. CASMERE: Thank you.

16 THE WITNESS: It's one process that  
17 may have multiple steps, but it's the same process  
18 and it's the same disease caused by -- you have to  
19 say the cumulative exposure that one has because  
20 you don't know which fiber on which day may have  
21 initiated that process in the first place.

22 BY MR. McCOY:

23 Q. What is the dose response relationship?

24 A. Very simply put, it means that as the dose  
25 or the exposure goes up, the likelihood of getting

1 disease goes up. This goes back to the concept  
2 from the 1400s which said the dose makes the  
3 poison. You can be exposed to small amounts and  
4 not get ill, but as the amounts increase, the  
5 likelihood of you getting ill increases. And all  
6 of the asbestos-related diseases that we know about  
7 are all what we call dose response, as are most of  
8 the disease we see in man.

9           You know, we're getting into flu  
10 season now. If somebody coughs on you once, you  
11 may get the flu, if they cough on you ten times,  
12 you're much more likely to. So it all goes back to  
13 this concept of the higher the dose, the higher the  
14 likelihood of getting disease.

15 Q.       How does the dose response concept relate  
16 to the cumulative exposure? And talk about  
17 asbestos.

18 A.       It has to do with -- the cumulative  
19 exposure or the cumulative dose comes from all of  
20 the exposures that one has over time. Someone like  
21 Mr. Suoja, who worked as an insulator for decades,  
22 all of the exposures that he had day one, day two,  
23 day a thousand, day 10,000, all of those were part  
24 of his cumulative exposure, which at the end of the  
25 day is what gave him his disease.

1 Q. That's the single disease process you're  
2 talking about?

3 A. Yes, sir.

4 Q. Now, I would like to ask you one other term  
5 here, the term latency, does that have a meaning  
6 with asbestos --

7 A. It does.

8 Q. -- mesothelioma?

9 A. Latency refers, again, to any medical issue  
10 that a person might have. If you're in a chemical  
11 plant and a valve breaks and you get chlorine gas  
12 all over you and you start coughing, the latency,  
13 the period from exposure to the onset of disease,  
14 is literally a matter of seconds.

15 For mesotheliomas following exposure  
16 to asbestos, they begin to occur about ten years  
17 after first exposure. There are reported cases of  
18 lesser amounts of time, but I generally use about  
19 ten years. And then the risk of getting that  
20 disease lasts throughout one's lifetime. I've seen  
21 mesotheliomas in 90-year-olds, so you never outlive  
22 your risk of getting a mesothelioma if you've had  
23 exposure to asbestos.

24 Q. Now, from the time that we have the first  
25 cancer cell, how long does it take to grow a

1 mesothelioma that would actually cover a lot of the  
2 organs in the abdominal cavity?

3 A. We don't really know. Literally earlier  
4 today I looked at another case of a peritoneal  
5 mesothelioma where the first symptoms were in 2010  
6 and the disease wasn't diagnosed until 2015, so it  
7 obviously takes years.

8 We know for lung cancer, which is  
9 the best study of cancers for these things, we know  
10 something about what's called the doubling time of  
11 cells. One cell becoming two cells, two cells  
12 becoming four cells and so forth. And for lung  
13 cancer, when we make a clinical diagnosis of the  
14 lung cancer, on average, it's probably been ten  
15 years that that first lung cancer cell was there.  
16 We don't know the same -- in exactly the same way  
17 for mesothelioma, but we know it's probably some  
18 years until that first cell becomes clinically  
19 apparent and the tissue diagnosis is made.

20 Q. Do all persons breathing asbestos in large  
21 quantities get mesothelioma?

22 A. No, sir.

23 Q. Why not?

24 A. Well, there's many reasons for that. They  
25 may get another disease, they may die of something

1 else. There's also the concept of individual  
2 susceptibility.

3 Mr. Suoja was a unionized asbestos  
4 worker. He -- well, insulators like him that were  
5 in the union, half of them die of an  
6 asbestos-related disease of one kind or another,  
7 but it's about ten percent that die of  
8 mesotheliomas, about 20 percent that die of lung  
9 cancer, ten percent that die of asbestosis, and the  
10 other ten percent die of other cancers related to  
11 asbestos. So it's probably factors like -- and  
12 mesothelioma, I should add, is the last of these  
13 many diseases to show up on average, so you may die  
14 of a lung cancer before you lived long enough to  
15 get your mesothelioma, on average. But also things  
16 like your immune system, your diet, your basic  
17 genetics may all be factors with regard to why some  
18 people get mesotheliomas and some don't.

19 Q. From an occupational standpoint, where do  
20 the insulator fall as far as the likelihood that  
21 that group would get peritoneal mesothelioma?

22 A. There is no group that I'm aware of -- and  
23 I've studied many, many different trades and  
24 exposures -- there's no group I'm aware of who as a  
25 group has more exposure to asbestos than

1 insulators. Miners and millers have less exposure,  
2 other trades that have high incidence of  
3 asbestos-related disease, plumbers and pipefitters,  
4 sheet metal workers, carpenters, electricians, and  
5 others, none of them have had as much exposure as  
6 insulators and none of those groups show as high a  
7 rate of disease as insulators. So they are sort of  
8 at the top of the heap in terms of exposure and,  
9 therefore, they're at top of the heap for the  
10 likelihood of getting a mesothelioma. And the  
11 background rate for mesothelioma in the general  
12 population is generally thought of as about one in  
13 a million, and among insulators, the rate of  
14 mesothelioma including peritoneal mesotheliomas,  
15 but all of them together, is more like one in ten,  
16 not one in a million.

17 Q. So what is the minimum exposure or dose  
18 that has been reported to cause mesothelioma?

19 MR. CASMERE: I'm going to object.  
20 Same objections as before.

21 THE WITNESS: In both humans and  
22 animals, as little as one day of exposure or less  
23 than a full working day has been shown to give rise  
24 to people developing mesotheliomas. The animal  
25 experiments were done by Dr. Wagner, W-A-G-N-E-R.

1 Dr. Wagner in 19 -- the 1970s showed that as little  
2 as one day of exposure would give rise to  
3 mesotheliomas. He also showed that there was a  
4 dose response relationship, and he also showed that  
5 all the different fiber types could do it in some  
6 very elegant animal experiments.

7 Dr. Greenberg in the British Journal  
8 of Industrial Medicine published a paper in 1974 in  
9 which he reported short-term exposures giving rise  
10 to mesothelioma, and the shortest exposure he  
11 reported on was a gentleman who cut asbestos boards  
12 in his backyard for one day to build some sheds in  
13 his back yard and about 30 years later came down  
14 with a mesothelioma. There's a report out of  
15 Australia of someone with six hours of exposure,  
16 and there are other -- many, many reports of people  
17 with -- and I've seen cases with just months of  
18 exposure. College students who had a summer job  
19 working construction and 15, 20, 30 years later  
20 came down with mesotheliomas from one summer's  
21 work.

22 Some of these are talked about in an  
23 affidavit I provided in this case. It's my  
24 affidavit of June 21, 2012, and I think one of the  
25 paragraphs there talks about.



1 BY MR. McCOY:

2 Q. Paragraph 24, I believe.

3 A. I think that's what it is. That's what I  
4 was turning to. It talks about these short-term  
5 exposures that people have.

6 Yeah, Paragraph 24 that begins on  
7 Page 12 of 28 and continues over to Page 14, talks  
8 about many articles talking about dose response,  
9 low-level exposure, the Greenberg and Davies,  
10 D-A-V-I-E-S, paper is listed there, among many  
11 others.

12 Q. Let's go to that Greenberg and Davies paper  
13 for a moment.

14 MR. McCOY: And this will be  
15 Plaintiff's Exhibit 202, also being offered as an  
16 80318 publication.

17 MR. CASMERE: I will re-assert my  
18 Rule 26 objections to all these and the affidavit.

19 MR. McCOY: Sure.

20 - - -

21 (Whereupon, Exhibit Plaintiff-202,  
22 Mesothelioma Register 1967-68, Authored by Morris  
23 Greenberg and T. A. Lloyd Davies Article, was  
24 marked for identification.)

25 - - -

1 THE WITNESS: If you turn in this  
2 paper to --

3 BY MR. McCOY:

4 Q. Can we first just briefly identify this for  
5 the record?

6 A. Oh, sure.

7 Q. So this is published in what journal?

8 A. The British Journal of Industrial Medicine,  
9 Volume 31. It begins on Page 91, 1974.

10 Q. And the authors are?

11 A. Morris Greenberg and Lloyd Davies.

12 Q. And what are their positions?

13 A. They were employed by the British medical  
14 advisory service.

15 Q. Are these both medical doctors?

16 A. I don't know about Dr. Davies. I don't  
17 know who he is. I do know Dr. Greenberg quite  
18 well. He's been a member of the Collegium  
19 Ramazzini, and Morris and I go back to my days at  
20 Mount Sinai back in the '70s or '80s.

21 Q. This article is called Mesothelioma  
22 Register 1967-68. What does that refer to?

23 A. It refers to the fact that in Great  
24 Britain, they kept a registry in those years where  
25 they had over 400 reports of mesotheliomas and they

1 then talked about various aspects of this. And if  
2 one turns to Table 6 on Page 96, what's interesting  
3 about that is how, again, it speaks to sort of how  
4 little exposure might be needed. These are all  
5 non-occupational exposures, these are not people  
6 who worked regularly with asbestos. And if you  
7 look at the very last one in that table, Case No.  
8 EW 68/80, Duration of Exposure, one day, sawing up  
9 asbestos cement sheets to construct two sheds. The  
10 one just above that was three years of intermittent  
11 exposure to a brother's overalls contaminated with  
12 asbestos. So these and the other cases in that  
13 list and throughout the article speaks in part to  
14 what you were asking me of how little asbestos does  
15 it take, it doesn't take much.

16 Q. And Table 6 is titled. Non-Occupational  
17 Asbestos Exposure Histories Obtained in Cases of  
18 Mesothelioma?

19 A. Yes, sir.

20 Q. What does that mean, non-occupational?

21 A. These are exposures that didn't occur as  
22 part of somebody's employment or at a workplace.  
23 They were people who worked with asbestos at home,  
24 they lived near an asbestos factory. They've got  
25 one, two... six people who were resident near

1 either a shipyard or an asbestos factory, a mile or  
2 less, less than a half a mile, less than a quarter  
3 of a mile. Another one a mile and a quarter from  
4 an asbestos factory and a couple more above that.  
5 Somebody worked next door to an asbestos factory.  
6 So we have many different kinds of exposure.

7 Maybe I could just explain that very  
8 briefly.

9 Q. I was just going to ask you -- maybe with a  
10 question, I was going to ask for my help [sic].

11 How does a non-occupational exposure  
12 relate to assessing someone who's got occupational  
13 exposure of an insulator?

14 A. Well, again, as I said, nobody has more  
15 exposure than insulators. So any other exposure,  
16 including non-occupational ones, would be less.  
17 Sometimes non-occupational exposures can rival what  
18 happens in some workplaces, but not what would  
19 happen with an insulator. And so you have direct  
20 exposure; that is, where you handle asbestos  
21 material. If you work near someone else who's  
22 handling it, that's called bystander exposure. If  
23 you bring it home and you contaminate the  
24 household, we call that either household or  
25 familial exposure. And then if you live near a

1 facility that makes use of asbestos, and we know of  
2 many such situations where disease can occur,  
3 that's called neighborhood exposure. All of those  
4 would be expected to be less than what an insulator  
5 would get day in and day out working with  
6 insulation materials.

7 Q. Okay. And there's another article that I  
8 want to ask you to include in terms of what we're  
9 actually doing for specific publication here.

10 A. Dr. Hillerdal's article.

11 Q. Right. Let me find that one.

12 MR. McCOY: This will be Plaintiff's  
13 Exhibit 203. I'll give you a copy of that,  
14 Mr. Casmere.

15 MR. CASMERE: Thank you. I'll  
16 re-assert my Rule 26 objections.

17 - - -

18 (Whereupon, Exhibit Plaintiff-203,  
19 Mesothelioma: Cases Associated with  
20 Non-occupational and Low Dose Exposure Article  
21 authored by Gunnar Hillerdal, was marked for  
22 identification.)

23 - - -

24 BY MR. McCOY:

25 Q. So Dr. Hillerdal's article is --

1 A. Well, it's called, Mesothelioma: Cases  
2 Associated with Non-occupational and Low Dose  
3 Exposures from the journal, Occupational and  
4 Environmental Medicine, Volume 56, Page 505, 1999.  
5 And Dr. Hillerdal reports on his review of the  
6 literature as to this phenomena of non-occupational  
7 and low dose exposure. And I think the one  
8 sentence here -- I'll read it from the abstract, it  
9 sums this all up: There is no evidence of a  
10 threshold level below which there is no risk of  
11 mesothelioma.

12 So this is consistent with what many  
13 organizations have written as recently as 2014.  
14 OSHA, the Occupational Safety and Health  
15 Administration, came out again with a statement  
16 that says there is no known safe level of exposure  
17 to asbestos. So what this implies is even very,  
18 very low levels of exposure -- and we're not  
19 dealing with that with an insulator -- can give  
20 rise to this disease.

21 Q. Directing your attention there to Page 507,  
22 it has a statement in there about levels of  
23 exposure. Do you see that section there?

24 A. I do, on the right side.

25 Q. Yeah. Okay. Is that a more detailed

1 explanation of the statement that you just read?

2 A. Yes.

3 Q. Okay. I'd like to -- let's go -- can we go  
4 ahead and publish this one?

5 I'm going to just have this read  
6 into the record then. Levels -- go ahead at the  
7 "levels of exposure."

8 A. Levels of exposure: Although many authors  
9 write about low level exposure to asbestos, there  
10 is rarely a definition of this term. In fact, in  
11 many articles low level exposure seems to be  
12 synonymous to non-occupational exposure, which as  
13 described later, is certainly not true in many  
14 cases. Occupational as well as non-occupational  
15 exposure can be anything from very heavy to very  
16 low.

17 Q. And continuing on, the next section is  
18 titled, Occupational Exposure to Asbestos in the  
19 article.

20 A. Yes. It must be realized that occupational  
21 exposure to asbestos occurs or has occurred not  
22 only in the classic industries, such as asbestos  
23 mines and factories, shipyards, insulating  
24 business, asbestos cement industry, building and  
25 construction, et cetera, but also in very many

1 other occupations and trades. He goes on to list  
2 some others. And I've seen workers from all of  
3 those settings that he mentions have mesotheliomas.

4 Q. Go ahead and read that.

5 MR. CASMERE: Dr. Frank is a  
6 wonderful reader, but I don't think he needs to  
7 reread what is in this publication into the record  
8 if you've already attached it as an exhibit. I  
9 think that's a waste of time.

10 MR. McCOY: Well, my understanding  
11 from Judge Crocker, Ed, and this is why I'm doing  
12 it, is that he's going to treat only the parts that  
13 we call to his attention as the evidence, that's  
14 what I understood him to say. So that's why I'm  
15 having read in the parts that were published just  
16 like it might to a jury.

17 BY MR. McCOY:

18 Q. Go ahead.

19 A. Examples are pulp and paper industry, oil  
20 refineries, electrical industry, jewelry workers,  
21 sugar refineries, and cigarettes filter workers.  
22 Seamen and fishermen can have been exposed to  
23 asbestos used as insulation in their boats. In the  
24 reprocessed textile industry, bags heavily  
25 contaminated with asbestos could be reused for



1 various other purposes; for instance, covering  
2 heaps of rags in an Italian investigation of such  
3 an industry, mesotheliomas and lung cancer were  
4 found to be fairly common among rag sorters.

5 So this speaks to the fact that you  
6 don't need much exposure to get the disease.

7 Q. Okay. And then what else does he say in  
8 that last paragraph?

9 A. Given the extensive use of the mineral,  
10 many people have been occupationally exposed to  
11 asbestos. This exposure can only have been -- can  
12 have been only brief but perhaps intense during the  
13 short -- that short period. In many or most  
14 instances, the workers have no idea of the exposure  
15 and it can be impossible or almost impossible to  
16 elucidate it. Also, the level of exposure is often  
17 very difficult to estimate, should the information  
18 be available.

19 Q. This journal in which it's published,  
20 Occupational and Environmental Medicine, that's a  
21 peer-reviewed journal?

22 A. Oh, absolutely. It's one of the leading  
23 British journals. It's the successor to the  
24 British Journal of Industrial Medicine, now called  
25 Occupational and Environmental Medicine, one of the

1 leading journals in our field.

2 Q. Continuing on to other actual literature  
3 and publications that support this statement about  
4 what you mean about the very low level in which  
5 asbestos disease exposures can -- very little level  
6 of exposures that can cause asbestos disease, what  
7 other publications have you cited?

8 A. Well, again, they're listed in great detail  
9 on Paragraph 24. There's Newhouse's paper from --  
10 well, this one we cite here is 1993, she has an  
11 earlier one -- oh, it's cited there too,  
12 September 1965. She talked about family members  
13 and residence near asbestos factories getting  
14 disease. Lee from Australia talks about exposures  
15 from the mines in Australia and how, again,  
16 household exposure and living near the mines can be  
17 a problem. So there are other papers that address  
18 this issue. Miller's paper on mesothelioma and  
19 household members of asbestos exposed workers. So  
20 we know, for example, that the family members of  
21 insulators get disease.

22 My only experience with that was a  
23 group of 36 insulators that I examined when I was  
24 at the University of Kentucky. Virtually all of  
25 them had evidence of disease, but a number of them

1 had brought their wives with them and we decided to  
2 x-ray them as well, and I remember five of the  
3 wives who, obviously, never worked as insulators,  
4 they also ended up with disease.

5 Q. Okay. I'd like to ask another question  
6 leading up to Mr. Suoja specifically here, but  
7 what's bystander exposure in the context of  
8 insulation work?

9 A. Well, if you've got a group of insulators,  
10 and my understanding is Mr. Suoja was part of a  
11 crew of maybe 20 insulators working, which was  
12 pretty much the norm, you, yourself, are working  
13 with the material, but the guys around you are  
14 working with it as well, and so you're getting  
15 exposed not only from your handling of the asbestos  
16 materials but the dust they create. Also, it  
17 refers to, if you're not an insulator, you may be  
18 working high up on a scaffold putting insulation on  
19 a pipe, the guys below you are doing other work,  
20 there may be pipefitters or electricians or  
21 carpenters working below you, and they will be  
22 exposed to whatever drifts down from up above, and  
23 those are called bystanders because they're not  
24 working with asbestos necessarily.

25 Q. All right. So at the request of my law

1 firm, have you reviewed medical records of Oswald  
2 Suoja?

3 A. Yes.

4 Q. Okay. And you had prepared a report based  
5 on your review of the records and information  
6 provided?

7 A. I did.

8 Q. Before we get into your findings on  
9 Mr. Suoja, what does the term "attribution" mean  
10 when you're talking about asbestos disease?

11 A. I think you can mean a number of things.  
12 You know, if someone has a certain disease, can it  
13 be said to be caused by asbestos, and then  
14 attribution could also refer to which product or  
15 products to which someone was exposed and were  
16 those a cause of the disease as well.

17 Q. Okay. So in the case of Mr. Suoja, have  
18 you been asked to attribute the cause of his  
19 mesothelioma?

20 A. Yes.

21 Q. And that's what my firm asked you to do?

22 A. That's what you asked me to do. My report  
23 of August 7, 2012 addresses that, and you asked me  
24 to render my judgment regarding any evidence of an  
25 asbestos-related disease, and if I had found that

1 by implication to say what caused it. And the  
2 third from the last paragraph says that it is my  
3 opinion held with a reasonable degree of medical  
4 certainty that Mr. Suoja, if I'm pro -- developed  
5 and then died from a malignant peritoneal  
6 mesothelioma that was caused by his exposures to  
7 asbestos. The cumulative exposures he had to  
8 asbestos from any and all products containing any  
9 and all fiber types would have contributed to his  
10 developing this cancer. Pretty straightforward.

11 MR. CASMERE: And I would re-assert  
12 my objections and the rulings of the Court on these  
13 things.

14 BY MR. McCOY:

15 Q. How do you go about attributing the cause  
16 of the peritoneal mesothelioma in Mr. Suoja?

17 MR. CASMERE: Same objection. Will  
18 you give me a continuing objection to these lines  
19 of questions about attribution and cause?

20 MR. McCOY: Sure.

21 THE WITNESS: When it comes to the  
22 disease mesothelioma and asbestos, it's actually  
23 quite an easy attribution to make. For example, if  
24 someone has a lung cancer, I've written about lung  
25 cancer, there's literally dozens of different

1 things that will do it, so one has to go through  
2 what's typically a sort of differential diagnosis.  
3 First, you have to be sure what the disease is.  
4 There was plenty of evidence that Mr. Suoja had, in  
5 fact, developed a mesothelioma; that it was a  
6 peritoneal mesothelioma. And then one looks for  
7 what are the causes of that disease.

8                   Here in North America, the only  
9 known cause of mesothelioma would be exposure to  
10 asbestos. The reason I use the geography is that  
11 there are other parts of the world with other  
12 fibers that are not asbestos. If you're in the  
13 central Anatolian plane of Turkey or on the  
14 northwest slope of Mount Etna where they mined  
15 fluoro-edenite, those will cause mesothelioma as  
16 well. In Turkey, it was something called fibrous  
17 zeolites, but, otherwise, in this country, the only  
18 truly recognized cause is exposure to asbestos.  
19 And clearly, as an insulator, that is an exposure  
20 that Mr. Suoja would have had, so the attribution  
21 of his mesothelioma to asbestos is pretty  
22 straightforward.

23 BY MR. McCOY:

24 Q.           The process by which you described, is that  
25 what you would call your methodology of attributing

1 causation?

2 A. Certainly, the methodology that a doctor  
3 uses in every case. Somebody comes with a problem,  
4 you first of all delineate what the problem is, so  
5 when I'm sent a file, I delineate what the problem  
6 is. In this case, the asbestos disease that I  
7 found, which is what I was asked to do, if there  
8 was one, was to find that he had a mesothelioma,  
9 and then one considers what the cause was.

10 We know from a hundred years of  
11 literature that mesotheliomas are caused by -- and  
12 other diseases are caused by asbestos. So we have,  
13 again, causation, if you will, and then the  
14 question is in Mr. Suoja, did his mesothelioma come  
15 from exposure to asbestos. And, again, having  
16 worked with Dr. Selikoff in his study of 17,800  
17 asbestos insulators, having examined insulators for  
18 many, many years, specifically I can say in my  
19 opinion, Mr. Suoja's exposure to asbestos as a  
20 insulator working at various construction sites was  
21 the cause of his mesothelioma.

22 Q. Okay. And I believe my law firm had  
23 originally provided an incorrect statement where we  
24 said that it was 1951 when he began as an insulator  
25 and I had advised you that it actually was 1943,

1 right?

2 A. Correct.

3 Q. Okay. And that his work history was that  
4 of an insulator and not that of a pipefitter, which  
5 was another mistake in the document that my firm  
6 had given you three or four years ago, right?

7 A. Correct.

8 Q. And so does that have any bearing in  
9 changing your original opinion in your report?

10 A. Of course not, no.

11 Q. Is there a particular piece of literature  
12 that you would point to in terms of how this  
13 methodology of attributing based on lifetime dose  
14 --

15 A. Well, there are --

16 Q. -- has been recognized?

17 A. Yes. I mean, there are various things that  
18 one can use. There's -- intuitively, one uses the  
19 so-called Bradford Hill criteria. Sir Austin  
20 Bradford Hill said that there were a number of  
21 points that allowed one to look at the issue of  
22 causation.

23 Specifically for asbestos, there's  
24 something called the Helsinki Criteria document,  
25 and in that Helsinki report there is a series of



1 comments that describe the methodology by which you  
2 can link exposure to asbestos --

3 Q. Let's take those one at a time.

4 A. -- to disease.

5 Q. Okay. Let's take those one at a time. The  
6 Bradford Hill criteria, is that something you  
7 considered in your assessment of the causation of  
8 Mr. Suoja's mesothelioma?

9 A. Yes, sir.

10 Q. How does that play into your assessment?

11 A. Well, among the criteria is, is there  
12 evidence that the exposure occurred before the  
13 disease? Clearly, that's true. Are there other  
14 settings with this material that caused the  
15 disease? Yes.

16 I forget what all nine criteria are,  
17 but he meets, if not all nine of them, most of  
18 them, and that's what Bradford Hill said was sort  
19 of required to be confident about an assessment.

20 Q. What's the significance of Bradford Hill in  
21 terms of this type of determination?

22 A. It allows one to make use of what we know  
23 from epidemiology and other studies to say that  
24 something is actually causative. Asbestos causing  
25 mesothelioma, vinyl chloride causing angiosarcoma

1 of the liver, cigarette smoking causing lung  
2 cancer, there are these considerations that one  
3 brings to bear, which I certainly do in every case  
4 with asbestos, as a possible cause of disease.

5 MR. CASMERE: I'm going to object.  
6 Are you talking about Bradford Hill in the context  
7 of general causation or specific causation?

8 THE WITNESS: General causation.

9 MR. CASMERE: Okay. I don't think  
10 that was clear from the question, but that's an  
11 epidemiological analysis?

12 THE WITNESS: Yes.

13 MR. CASMERE: Right.

14 MR. McCOY: That was going to be my  
15 question.

16 MR. CASMERE: I was getting to it  
17 faster, Bob.

18 MR. McCOY: Right. Okay.

19 BY MR. McCOY:

20 Q. Well, I'll stand by that question  
21 Mr. Casmere just asked, so that's an  
22 epidemiological principle. Okay?

23 Now, let's go, then, to the second  
24 thing you mentioned, and I've got a copy here,  
25 which I'll mark as exhibit -- I think we're at 204,

1 right?

2 A. 204.

3 Q. Okay.

4 - - -

5 (Whereupon, Exhibit Plaintiff-204,  
6 Consensus Report, Asbestos, Asbestosis, and Cancer:  
7 The Helsinki Criteria for Diagnosis and  
8 Attribution, was marked for identification.)

9 - - -

10 BY MR. McCOY:

11 Q. Okay. So Plaintiff's Exhibit 204, would  
12 you identify that for us?

13 A. This is a write-up or a summary of the  
14 Helsinki Criteria document of 1997. This was a  
15 synopsis put together and published in the  
16 Scandinavian Journal of Work and Environmental  
17 Health, Volume 23, Page 311 is where it starts,  
18 1997. And it's --

19 Q. What's the title of it?

20 A. Asbestos, Asbestosis, and Cancer: The  
21 Helsinki Criteria for Diagnosis and Attribution.

22 Q. Okay. So let me just have this published  
23 again into the record a few portions of this just  
24 to explain what this was about.

25 MR. CASMERE: I'll have the same

1 Rule 26 objections. Go ahead.

2 BY MR. McCOY:

3 Q. Maybe just that first paragraph.

4 A. The International Expert Meeting on  
5 Asbestos, Asbestosis, and Cancer was convened in  
6 Helsinki on 20 through 22 January 1997 to discuss  
7 disorders of the lung and pleura in association  
8 with asbestos and to agree upon state-of-the-art  
9 criteria for their diagnosis and attribution with  
10 respect to asbestos. The group decided to name  
11 this document The Helsinki Criteria.

12 Q. Okay. And then the third paragraph there.

13 A. The meeting was attended by 19 participants  
14 from eight countries not producing asbestos. The  
15 chairmen were Professor Douglas W. Henderson, it  
16 gives his home base. And Professor Jorma,  
17 J-O-R-M-A, Rantanen, R-A-N-T-A-N-E-N, of the  
18 Finnish Institute of Occupational Health Finland.  
19 The group was a multidisciplinary gathering of  
20 pathologists, radiologists, occupational and  
21 pulmonary physicians, epidemiologists,  
22 toxicologists, industrial hygienists, and the  
23 clinical and laboratory scientists specializing in  
24 tissue fiber analysis. Collectively, the group had  
25 published over 1,000 articles on asbestos and

1 associated disorders.

2 Q. That's good right there, I think. Okay.

3 Now, the next paragraph or the next  
4 heading says, General Considerations.

5 A. Yes.

6 Q. Okay. Go ahead.

7 A. Occupational exposures to asbestos dust  
8 have been widespread in all industrial countries  
9 and continue as a consequence of in-place  
10 materials. In detailed interviews, about  
11 20 percent to 40 percent of adult men report some  
12 past occupations and jobs that may have entailed  
13 asbestos exposure at work. In Western Europe,  
14 North America, Japan, and Australia, the use of  
15 asbestos peaked in the 1970s, and currently about  
16 10,000 mesotheliomas and 20,000 asbestos-induced  
17 lung cancers are estimated to occur annually in the  
18 population of approximately 800 million people.

19 Q. And continuing on.

20 A. In general, reliable work histories provide  
21 the most practical and useful measure of  
22 occupational asbestos exposure. Using structured  
23 questionnaires and checklists, trained interviewers  
24 can identify persons who have a work history  
25 compatible with significant asbestos exposure.

1 Dust measurements can be used in the estimation of  
2 past fiber levels at typical workplaces and in the  
3 use of asbestos-containing materials. A cumulative  
4 fiber dose, as expressed in fiber years per cubic  
5 centimeter, is an important parameter of asbestos  
6 exposure.

7 Q. Okay. And on the -- let me go back on one  
8 part of this. In that fourth paragraph, it talks  
9 about who's supporting and funding this, right?

10 A. The meeting was scientifically supported by  
11 leading institutions in the field of asbestos  
12 research, and it was funded by the Ministry of  
13 Social Affairs and Health and the Finnish Work  
14 Environment Fund.

15 Q. All right. Now, is there a portion of this  
16 document, then, that relates to the -- specifically  
17 to mesothelioma?

18 A. Yes.

19 Q. Okay. And that begins on Page 313, right?

20 A. Yes.

21 Q. So is a portion of this, then, relating to  
22 the attribution question that we had --

23 A. Yes.

24 Q. -- posed for you for Mr. Suoja?

25 A. Yes.

1 Q. Okay.

2 A. And it reads as follows: The following  
3 points needs to be considered in the assessment of  
4 occupational etiology. The great majority of  
5 mesotheliomas are due to asbestos exposure.  
6 Mesothelioma can occur in cases with low asbestos  
7 exposure; however, very low background  
8 environmental exposures carry only an extremely low  
9 risk. About 80 percent of mesothelioma patients  
10 have had some occupational exposures to asbestos  
11 and, therefore, a careful occupational and  
12 environmental history should be taken. An  
13 occupational history of brief or low level exposure  
14 should be considered sufficient for mesothelioma to  
15 be designated as occupationally related. A minimum  
16 of ten years from the first exposure is required to  
17 attribute the mesothelioma to asbestos exposure,  
18 though in most cases, the latency interval is  
19 longer, e.g., on the order of 30 to 40 years. And  
20 the last statement is, Smoking has no influence on  
21 the risk of mesothelioma.

22 Q. And Mr. Suoja was a non-smoker?

23 A. That's my understanding.

24 Q. Okay. So in terms of your assessment, the  
25 attribution for Mr. Suoja of the causation of the

1 mesothelioma, are these Helsinki Criteria points  
2 something that you follow?

3 A. Yes.

4 Q. This is a 1997 publication. Have there  
5 been any updates on the Helsinki Criteria?

6 A. There was a new version in 2014, and these  
7 points were not changed.

8 THE WITNESS: Do you need a break?

9 THE COURT REPORTER: I'm going to  
10 wait until about ten of because I need to feed my  
11 meter.

12 THE WITNESS: Okay.

13 THE COURT REPORTER: So, thank you.  
14 About 20 minutes, though.

15 MR. McCOY: Yeah. We're moving  
16 along pretty good. We're going pretty fast now.

17 BY MR. McCOY:

18 Q. So are you familiar with the publication by  
19 Welch in 2007?

20 A. Yes, I'm a signatory to it. It's an amicus  
21 brief that was then published in the International  
22 Journal of Occupational and Environmental Health.

23 MR. CASMERE: Same Rule 26  
24 objection.

25 BY MR. McCOY:



1 Q. So that's a peer-reviewed publication?

2 A. Yes, sir.

3 Q. And you say it was an amicus brief meeting,  
4 something that was also part of a courtroom file?

5 A. Yes.

6 Q. Okay. And I'm referring, I guess, to this  
7 Paragraph 61 of your affidavit that was filed in  
8 September 19th of 2014 in this case.

9 What does that say in terms of that  
10 publication about the considerations in attribution  
11 compared to what we've already talked about for  
12 Helsinki or Bradford Hill?

13 A. They're very similar. As outlined in  
14 Paragraph 61, it says, Examining the question of  
15 causation of disease in an individual generally  
16 involves four questions: One, was the individual  
17 exposed to a toxic agent; two, does the agent cause  
18 the disease present in the individual; three, was  
19 the individual exposed to this substance at a level  
20 where disease has occurred in other settings; and,  
21 four, have other competing explanations for the  
22 disease been excluded.

23 That was, again, my method, if you  
24 will, in thinking about Mr. Suoja's case, and he  
25 does meet all those criteria. He was exposed to

1 asbestos; it causes mesothelioma; he was exposed at  
2 a level where disease has been seen in other  
3 settings, literally all over the world; and there  
4 was no competing explanation for his disease.

5 Q. Why is just knowing that Oswald Suoja was a  
6 career insulation worker would be sufficient  
7 information about the dose for this attribution  
8 question?

9 A. Because I know something about that group  
10 of workers. As I said, the main group that Dr.  
11 Selikoff studied was 17,800 insulators. We  
12 regularly examined them in and around New York  
13 City, literally all over the country and Canada  
14 doing various kinds of research in the years that I  
15 was with him. I have talked to many insulators,  
16 I've gotten histories from many of them. And as I  
17 said earlier in my testimony, there's no group with  
18 a higher level of exposure to asbestos than these  
19 individuals.

20 Q. About how many years did you spend with  
21 Dr. Selikoff on this research that concerned  
22 insulators?

23 A. I started with him as a first year medical  
24 student, so my level of responsibility got greater  
25 when I was a first and second year student; I could

1 do paperwork, but by the time I was a third year  
2 clinical student, he would let me do the physical  
3 examinations.

4 When I finished all of my training,  
5 I joined the faculty at Mount Sinai in his unit and  
6 there were times that I'd be in charge of a field  
7 team of 50 people going out and examining asbestos  
8 workers. We'd read x-rays in the field to make  
9 sure we didn't find an acute disease that was  
10 present that the worker didn't know about. We used  
11 to regulate pick up unknown lung cancers, for  
12 example.

13 And I left Mount Sinai in 1983, but  
14 kept in touch with him until the time of his death,  
15 until he passed away in 1992, so it was certainly  
16 actively between 1968 and 1983 that I was at Mount  
17 Sinai except for my time at the NIH. And even  
18 then, I would be given permission to leave and go  
19 out on asbestos-related studies.

20 Q. And Dr. Selikoff's research had already  
21 started before you got there in '68, right?

22 A. Absolutely. He had published some critical  
23 work in the early 1960s. Then in '68, the year  
24 that I joined him, he had published a very  
25 important paper that year as well.

1 Q. So your experience, your personal  
2 experience includes '68 to '83, and you also had  
3 the benefit of knowing about his research that was  
4 done earlier?

5 A. Yes, sir.

6 Q. To know if a person had a sufficient  
7 dose -- let's talk about an insulator.

8 To know if an insulator had a  
9 sufficient dose of asbestos to cause peritoneal  
10 mesothelioma, is it necessary that you have an  
11 exact measurement of the number of asbestos fibers  
12 inhaled?

13 A. Absolutely not. And I've been doing this  
14 work for over 40 years, not in a single case have I  
15 ever known the exact dose. And even when it was  
16 required legally, when OSHA came into being, it  
17 required that places where asbestos was used on a  
18 regular basis, like the work of insulators, that  
19 measurements be taken.

20 One of the interesting pieces of  
21 research Dr. Selikoff did is he sent about 10,000  
22 of his 17,000 insulators letters asking if they had  
23 seen what had been a legally required measurement  
24 in their workplace in the previous year. They were  
25 supposed to be done every six months, so in a year

1 they should have seen -- each worker should have  
2 seen two such evaluations. He got back about 9,000  
3 of the 10,000 postcards he sent out, and in less  
4 than ten instances, ten, had a worker seen an  
5 individual exposure measurement during the previous  
6 year when there should have been two seen by every  
7 one of those workers.

8 Q. Does the absence of data of an exact  
9 measurement make it any -- difficult for you to  
10 come up with an attribution for Mr. Suoja's  
11 mesothelioma?

12 A. It causes me no difficulty.

13 Q. And why is that?

14 A. Because I don't need to know what the exact  
15 exposure was. First of all, if you go through all  
16 of the literature, nobody knew what the exact  
17 measurement of any of these cases were ever that's  
18 been reported in the literature that I'm aware of.  
19 I've looked at thousands of legal cases and not a  
20 single case have I ever had knowledge of what the  
21 exact exposure was. Occasionally somebody will do  
22 what's called a dose reconstruction, try to  
23 estimate what the exposure was. The literature  
24 speaks to that and people have found that as little  
25 as .1 fiber years, so that means working at .1

1 fiber per cc and that's now currently the legally  
2 required upper limit, which has only been in place  
3 in this country since 1994.

4 In Mr. Suoja's day, that exposure --  
5 he was pre-OSHA -- would have been much higher, but  
6 even at -- you know, so all of the years he would  
7 have worked, the recommended levels of exposure  
8 would have been higher. So he clearly would have  
9 had more than .1 fiber year of exposure over, you  
10 know, decades of working, and that level has been  
11 shown in groups of individuals to be sufficient to  
12 cause cases of mesothelioma.

13 Q. How is it that it's been shown sufficient?  
14 I mean, is that the science of epidemiology that  
15 we're talking about primarily?

16 A. It's combining epidemiology with industrial  
17 hygiene, yes. The work of LeCourt, L-E-C-O-U-R-T.  
18 He talked about .1 fiber year; Dr. Rodelsberger was  
19 a .15, I believe; and an older paper was Iwatsubo  
20 -- I'll give it to you later -- Iwatsubo was a .5  
21 fiber years.

22 Q. What about your personal observations of  
23 the work of insulators, does that relate to  
24 Mr. Suoja's case even though you didn't see him?

25 A. Yes. I mean, I haven't seen many

1 insulators actually working. I've seen images and  
2 I've certainly talked to many insulators, and many  
3 of them talk about literally the clouds of dust  
4 that they worked in.

5 Q. Do you have with you the medical records  
6 that you reviewed --

7 A. I do.

8 Q. -- and data on Mr. Suoja?

9 A. I do.

10 Q. Okay. Let me just take a look at that file  
11 for one second.

12 A. (Hands file to counsel.)

13 MR. CASMERE: Are you almost done,  
14 because we need to take a break?

15 THE WITNESS: So the court reporter  
16 can feed her meter.

17 THE COURT REPORTER: Is this a good  
18 time or are we going to --

19 MR. McCOY: This is fine.

20 THE COURT REPORTER: Thank you.

21 - - -

22 (Whereupon, a brief recess was taken  
23 at 9:42 a.m., which the deposition continued at  
24 9:53 a.m.)

25 - - -

1 (Whereupon, Exhibit Plaintiff-142,  
2 Arthur Frank, M.D., Records of Oswald Suoja, was  
3 marked for identification.)

4 - - -

5 BY MR. McCOY:

6 Q. We've got next for the record, Plaintiff  
7 Exhibit No. 142. This is not being offered for  
8 evidence purposes, but is Exhibit 142 a copy of the  
9 filed information in your report?

10 A. Yes, sir.

11 Q. So that's the information you worked off  
12 of. What -- and that includes a work history?

13 A. Yes, sir.

14 Q. Okay. It lists some job sites, right?

15 A. Yes, sir.

16 Q. And --

17 A. Medical records.

18 Q. Medical records. Okay.

19 So based on the medical records,  
20 what disease did Mr. Suoja have?

21 A. He had a malignant peritoneal mesothelioma.

22 Q. And is there anything unusual or  
23 significant in his medical records that would make  
24 his peritoneal mesothelioma any different than what  
25 we've been talking about so far today?



1 A. No, sir.

2 Q. You have a copy of his death certificate  
3 there?

4 A. I do. And mesothelioma is misspelled, but  
5 it says he died of a mesothelioma as a consequence  
6 of asbestos exposure. I certainly would agree with  
7 that. It also says he had other significant  
8 condition, they list it as diabetes, which he also  
9 had, but they got the type wrong, it's Type 2, not  
10 Type 1, but that's okay.

11 Q. Did the diabetes cause his death?

12 A. No, mesothelioma caused his death.

13 Q. And based on your review of the records,  
14 what -- was that diabetes controlled even though it  
15 had reached the advanced stages?

16 A. With the drugs we have these days, diabetes  
17 can be pretty well controlled.

18 Q. Anything else or did you see anything in  
19 there besides the mesothelioma that would have  
20 shortened his life expectancy?

21 A. No. He had other medical issues. He was  
22 on thyroid medication, that's not going to shorten  
23 his life; thyroid disease, so no.

24 Q. The surgical pathology report, can you turn  
25 to that for a moment?

1 A. Yes, sir. Yes, I have it.

2 Q. Okay. What does that show?

3 A. It shows that they took four specimens when  
4 they were in there looking at what was going on in  
5 his abdomen. Macroscopic, as I said, four  
6 specimens, and they all turned out to document that  
7 he had developed the mesothelioma.

8 Q. What areas were these specimens from?

9 A. From his pelvis, from the mesentery, which  
10 is the connective tissue between the organs, the  
11 omentum, which is more of this connective tissue,  
12 and from the left diaphragm, so all the way from  
13 the bottom of the abdominal cavity to the top.

14 Q. And what were the findings for each of  
15 those specimens in term of whether it was cancerous  
16 or not?

17 A. They were all cancerous.

18 Q. All mesothelioma?

19 A. Ultimately that's what they decided. This  
20 was a -- originally they said adenocarcinoma versus  
21 mesothelioma. They finally decided it was a  
22 mesothelioma.

23 Q. Okay. And do you agree with their ultimate  
24 findings?

25 A. Yes.

1 Q. So moving on here, your report mentions an  
2 80-year history of literature, right?

3 A. Yes.

4 Q. Okay. And that is about the asbestos  
5 diseases, right?

6 A. Well, that goes back to Merewether and  
7 Price.

8 Q. Basically what does this history establish  
9 about the dangers of asbestos?

10 A. The history is it has been accumulating for  
11 the last hundred years, but particularly the last  
12 80 years is that asbestos is a hazardous material,  
13 a toxic material, a carcinogenic material. Cancers  
14 were suggested as early as 1935. The first report  
15 of asbestos-causing mesothelioma was in 1938.  
16 There was a report in the literature in 1950 -- I'm  
17 sorry, 1944, a gentleman who was a plumber. Lung  
18 cancer was definitively linked in 1942 in Dr.  
19 Hueper -- H-E-U-P-E-R [sic], Dr. Hueper's book, so  
20 we've known about the cancer-causing potential of  
21 asbestos since the early 1940s.

22 Q. And you began earlier in talking about the  
23 Merewether article.

24 A. Yes, sir.

25 Q. Why did you choose the Merewether article

1 of 1930, Merewether and Price?

2 A. Because that article -- I look upon it as  
3 very comprehensive. It talks, as I said, men get  
4 disease, women get disease, different products do  
5 it. It talks about prevention, it talks about  
6 educating workers. It does all the things 85 years  
7 ago now that we know now and that we ought to be  
8 doing in all workplace settings.

9 Q. What does it talk about that existed as far  
10 as prevention?

11 A. Well, it talked about lower the exposure,  
12 educating the worker, providing respirators or  
13 air-supplied hoods. If you don't get exposed or  
14 you reduce the exposure, you reduce the likelihood  
15 of getting the disease.

16 Q. Was there some way back in the earlier time  
17 to have something other than asbestos for  
18 prevention purposes?

19 MR. CASMERE: Objection to form;  
20 foundation; Rule 26.

21 THE WITNESS: There were other  
22 products available in the 1940s that ended up being  
23 a substitute for asbestos; the artificial fibrous  
24 materials that we refer to generally as fiberglass  
25 but it really is various fibrous glass products or

1 other kinds of products or materials that could  
2 substitute for asbestos.

3 BY MR. McCOY:

4 Q. And is that a method of prevention?

5 A. Yes, substitution.

6 MR. CASMERE: Same objections.

7 BY MR. McCOY:

8 Q. All right. How many fibers would you  
9 estimate or release during normal pipe covering  
10 installing and removing work?

11 A. Millions.

12 MR. CASMERE: Objection to form;  
13 foundation; Rule 26.

14 BY MR. McCOY:

15 Q. In Paragraphs 66 and 67 of this affidavit  
16 that was filed in September of 2014 --

17 A. Yes, sir.

18 Q. -- you give some statements about numbers  
19 of asbestos fibers.

20 A. Yes.

21 Q. And is that -- these high numbers of  
22 millions and --

23 A. Billions and trillions.

24 Q. Okay. This is what you're referring to?

25 A. Well, this refers to brake dust, but it

1 could refer to a lot of other products. These were  
2 specifically measured in brakes, but other products  
3 would give off these levels of fibers depending on  
4 how much dust you were creating.

5 Q. And when you give that figure of millions  
6 of fibers or more as an estimate, are you talking  
7 about a lifetime, are you talking about just --

8 A. In a given day.

9 Q. Okay. Let's say somebody is cutting some  
10 pipe and you're assessing how much actual fiber  
11 exposure they have, what happens when there's dust  
12 that's created, what happens to those asbestos  
13 fibers?

14 MR. CASMERE: Objection. Rule 26.

15 BY MR. McCOY:

16 Q. Go ahead.

17 A. I think you mean pipe covering, not pipe.

18 Q. You're right.

19 A. I mean, there's asbestos cement pipe, but  
20 you're referring to the pipe covering?

21 Q. Right, the insulation material, the pipe  
22 covering.

23 A. You can measure how much is there and it  
24 can be very high levels, and what happens to it is  
25 people working with it in cutting it, if they're

1 not wearing a respirator, are going to breathe in  
2 considerable numbers of fibers.

3 Q. Do these fibers settle out very quickly or  
4 what happens?

5 MR. CASMERE: Same objections.

6 THE WITNESS: Some fibers can stay  
7 in the air literally for hours, and then in the  
8 process of cleaning up, if somebody comes by or  
9 disturbs it, walks through it, drags material  
10 through the dust that re-entrains it, puts it back  
11 up in the air, it can be rebreathed.

12 Q. Is this part of the exposure assessment you  
13 make with regard to an insulator like Mr. Suoja?

14 A. Yes.

15 MR. CASMERE: Same objection.

16 BY MR. McCOY:

17 Q. Okay. I'd like you to assume that  
18 Mr. Suoja had personally installed or removed  
19 asbestos-containing pipe insulation for at least  
20 one month in 1950s or 1960s and the visible dust  
21 was generated from cutting or removing that pipe  
22 covering insulation and crews of multiple  
23 insulators, and also assume that Mr. Suoja was  
24 diagnosed with peritoneal mesothelioma in 1996.  
25 What is your opinion as to whether this exposure

1 alone could cause peritoneal mesothelioma if that  
2 was his only dose?

3 MR. CASMERE: Let me interpose an  
4 objection here on Rule 26; form; foundation; and  
5 the prior court rulings on this issue. Thank you.

6 BY MR. McCOY:

7 Q. Go ahead.

8 A. Are you talking about his whole career he  
9 only spent one month, or with a particular product?

10 Q. I'm asking you --

11 A. In general, one month would be sufficient  
12 to give him his peritoneal mesothelioma. If that's  
13 the only exposure he had, that would be sufficient,  
14 in my opinion.

15 Q. Okay. And what is the basis for your  
16 saying this?

17 A. For all the things we've been talking about  
18 this morning, about how little asbestos it takes to  
19 actually give one a mesothelioma. If you're giving  
20 me a month of exposure, even, let's say, four weeks  
21 of five or six work days, compared to one day, both  
22 in humans and animals doing it, that's certainly,  
23 in my mind, sufficient.

24 Q. How about under the Bradford Hill or  
25 Helsinki Criteria?



1 A. Same thing. The Helsinki Criteria talk  
2 about, you know, even low exposures can do it. A  
3 month is not necessarily a low exposure.

4 MR. CASMERE: Same objections.

5 BY MR. McCOY:

6 Q. Can mesothelioma be cured?

7 A. I've been doing this kind of work for over  
8 45 years, I've never seen a patient cured of  
9 mesothelioma.

10 Q. Is there a safe level of exposure to  
11 asbestos when you're talking about mesothelioma?

12 A. Yes, there is one safe level, zero.  
13 Anything other than zero is not -- should not be  
14 considered as safe.

15 Q. You mentioned something earlier about -- I  
16 can't remember your exact terminology, but  
17 recommended levels in the earlier years.

18 A. OSHA is a government agency that put in  
19 legally allowable limits. Prior to that --

20 Q. When did OSHA's limits go in --

21 A. 1972.

22 Q. Okay.

23 A. Prior to 1972, there were -- some states  
24 may have had legal limits. I don't know about  
25 where Mr. Suoja worked, so I can't speak to those,

1 but many places adopted or made use of what were  
2 essentially recommendations, which was one  
3 organization called the ACGIH, American Conference  
4 of Governmental Industrial Hygienists, and the  
5 ACGIH had and continues to have recommended levels  
6 of exposure for many, many materials, including  
7 asbestos. So prior to OSHA, these were often  
8 recommendations; some states adopted them.

9 Q. What was the ACGIH level?

10 A. For many years, it was 5 million particles  
11 per cubic foot.

12 Q. And how does that factor into the causation  
13 assessment for Mr. Suoja's mesothelioma?

14 A. Well, we know that that is a level that --  
15 first of all, it didn't protect people from getting  
16 asbestosis.

17 Q. It didn't protect from what?

18 A. Asbestosis. And it takes more asbestos to  
19 produce asbestosis than it does to produce the  
20 cancers, so it certainly didn't protect against  
21 cancer. And that was well recognized in the work  
22 of Dr. Stokinger, Herbert Stokinger, who in 1956  
23 wrote that if the ACGIH was interested in  
24 protecting against cancer from asbestos, the levels  
25 should be 100 to 500 times less because of all the

1 levels we're speaking to at that point was  
2 preventing asbestos.

3 MR. CASMERE: I didn't want to  
4 interrupt, but I have objections to form,  
5 foundation, and Rule 26.

6 BY MR. McCOY:

7 Q. Your evaluation of these different exposure  
8 levels, that's something that factors into your  
9 assessment of Mr. Suoja's causation, right?

10 MR. CASMERE: Same objections.

11 THE WITNESS: Yes.

12 BY MR. McCOY:

13 Q. Let me just check my notes. I think we're  
14 done here.

15 MR. McCOY: Okay. I think that's  
16 it. Thank you, Doctor.

17 THE WITNESS: You're very welcome.

18 - - -

19 CROSS-EXAMINATION

20 - - -

21 BY MR. CASMERE:

22 Q. Hi, Doctor.

23 A. Hi, Mr. Casmere.

24 Q. How are you?

25 A. I'm good. It's nice to see you again, sir.

1 Q. Good to see you.

2 Mr. McCoy crammed a lot of stuff  
3 there at the end, so we'll try to go through this.  
4 And I'm going to ask you some questions and then  
5 I'm going to ask you some questions subject to my  
6 prior objections since this is the only chance I  
7 get to see you in this case.

8 Your report in this case, which is  
9 Plaintiff's Exhibit 142, is dated August 7, 2012,  
10 correct?

11 A. Yes, sir.

12 Q. That's a single page?

13 A. Yes.

14 Q. You reviewed approximately 20 pages of  
15 medical records?

16 A. Yes.

17 Q. And you had a one-paragraph work history  
18 and then one or two other documents, correct?

19 A. Correct.

20 Q. That's the totality of the material you had  
21 to render your opinions in this case?

22 A. No, that's the totality that I had  
23 regarding Mr. Suoja. I've had 45 years of reading  
24 this literature to come to a conclusion and render  
25 my opinion which I brought to bear on this, but

1       you're right, what I had was the documents you just  
2       enumerated in this specific case.

3       Q.       Specific to Mr. Suoja?

4       A.       Correct.

5       Q.       Before the last couple of days preparing  
6       for this deposition, you had spent about an hour on  
7       this case; is that fair?

8       A.       Yes, sir.

9       Q.       And you didn't review any pathology, chest  
10      x-rays, or CTs?

11      A.       Correct, I reviewed the reports.

12      Q.       You are accepting as accurate the diagnosis  
13      made by the pathologist that it's a mesothelioma,  
14      correct?

15      A.       Yes, and the treating doctor.

16      Q.       For the attribution opinions that you gave  
17      in this case, you really only needed two pieces of  
18      information; one is that Mr. Suoja was diagnosed  
19      with mesothelioma, and two was that there was some  
20      history of exposure to asbestos; is that correct?

21      A.       I needed a third piece that there was a  
22      sufficient latency.

23      Q.       Anything else?

24      A.       No.

25      Q.       Okay. And I think you've made this clear,

1 but it doesn't matter what type of asbestos, how  
2 much he was exposed, how long, or what type of  
3 exposure it was, correct?

4 A. None of the above.

5 Q. Okay. None of that matters?

6 A. Well, it matters, but you don't have the  
7 information. I don't know -- you know, I mean, I  
8 have the fact that he worked from '43 to '84, so we  
9 have a duration. It's, you know, about 40 years.

10 I don't have a proximity other than he was an  
11 insulator and he would be working hands-on. I  
12 certainly don't have a dose because nobody was  
13 measuring it. So I have some of that information,  
14 I just don't have -- in a numerical detail.

15 Q. In your attribution opinion, it was enough  
16 -- he had enough exposure by 1944 to cause his  
17 mesothelioma?

18 A. If that had been his only exposure, I would  
19 be sitting here said that year of exposure was  
20 enough to give his mesothelioma, of course.

21 Q. No diagnosis of asbestos in this case?

22 A. No.

23 Q. And even you couldn't say that the single  
24 pleural calcification was asbestos related?

25 A. Well, that's all I saw and I didn't have

1 enough other information to determine that it was  
2 or it wasn't. It may well be. Seven percent of  
3 plural calcifications are unilateral among  
4 individuals, but there are other causes of it, so I  
5 didn't have enough information to say with a  
6 reasonable degree of medical certainty that it was  
7 the cause of his pleural calcification, though it's  
8 certainly consistent with his exposures.

9 Q. Now, in looking at the pathology report,  
10 did you notice that the tumor was mucin producing.  
11 Did you see that?

12 A. Well, that was on frozen section, and it  
13 turns out it probably wasn't a mucin-producing  
14 tumor, because there are mucin-producing  
15 mesotheliomas.

16 Q. It's rare to have a mucin-producing  
17 mesothelioma?

18 A. I don't recall ever seeing one.

19 Q. But for the purpose of your opinions in  
20 this case, it doesn't really matter if he had a  
21 mesothelioma or if he had stomach cancer or liver  
22 cancer, you would say that it's related to his  
23 asbestos exposure?

24 A. No, no, no, no, no. No. I would say --  
25 let's be clear, and you're putting words

1 potentially in my mouth. Mesotheliomas related to  
2 asbestos, stomach cancer related to asbestos.  
3 Liver cancer, no, I would not claim that that was  
4 caused by asbestos. And if it was a lung cancer in  
5 a non-smoker with 40 years of exposure to asbestos,  
6 I would say that that was related to his asbestos  
7 exposure, but it's not a lung cancer either.

8 Q. Then to be more precise with my question,  
9 even if it turned out that he didn't have a  
10 mesothelioma but he had a stomach cancer, you would  
11 say that was related to his exposure to asbestos?

12 A. There are mucin-producing adenocarcinomas  
13 of the stomach and I would say that a stomach  
14 cancer would be related to. Asbestos and there's  
15 increasing literature on that subject, you know,  
16 including work in a factory done in China with my  
17 colleagues over there that documented that, among  
18 many other studies.

19 Q. You have in the past referred to yourself  
20 as an academic physician?

21 A. I always -- I still do. I mean, that's one  
22 way I can give myself an attribution. I've always  
23 been an academic. I finished my training on  
24 June 30th, I became a faculty member on July 1st in  
25 1977, and I've always been in an academic setting.



1 I have not had a private practice, but I practice  
2 medicine, I hold active licenses now, I still do  
3 clinical related research, I have a project in  
4 Texas that's clinically related, but I've always  
5 been an academic physician in that I've taught and  
6 done research and done a lot of other things which  
7 I do in the academic setting.

8 Q. In terms of actually seeing patients and  
9 laying hands on patients, how frequently do you do  
10 that?

11 A. I haven't seen patients for a few years  
12 now. I'm at the School of Public Health. I teach  
13 over in the College of Medicine. I sometimes get  
14 telephone referrals from colleagues, but I haven't  
15 laid hands on in a few years now.

16 Q. For the benefit of the Judge who will be  
17 reading this and since you do this better than I  
18 do, can you just go through the list of what you're  
19 not?

20 A. Sure. I mean, there's a whole long list of  
21 things I'm not.

22 Q. You know what --

23 A. But medically, the usual list, I'm not a  
24 pathologist, I'm not a pulmonologist, I'm not an  
25 oncologist, I'm not a radiologist, I'm not an

1 industrial hygienist, certified or otherwise. As  
2 Popeye might say, I yam who I yam, and I'm a board  
3 certified internist and a board certified  
4 occupational medicine specialist and I hold a Ph.D.  
5 in the area of asbestos.

6 Q. You are not a material scientist either?

7 A. I'm not a material scientist, I'm not a  
8 mineralogist, I'm not a geologist.

9 Q. Nor a history professor?

10 A. I'm not a history professor. I'm  
11 interested in history, I read a lot of history, but  
12 I'm not a history professor.

13 Q. You've been doing this type of litigation  
14 consulting work for, I think you said just over --  
15 a little over 35 years?

16 A. Yes, sir, since the late '70s.

17 Q. You have testified well over a thousand  
18 times?

19 A. Yes.

20 Q. In trial, do you have any estimate how many  
21 trial testimony you've given?

22 A. Probably about 200 now, 180 to 200.

23 Q. You have written probably over 5,000  
24 different expert reports in asbestos litigation  
25 over the years?

1 A. Yes.

2 Q. You have never testified at a trial for a  
3 company who was a defendant in an asbestos-related  
4 personal injury litigation?

5 A. Not for a company. I had testified for the  
6 City of Philadelphia twice about a year ago, but  
7 they weren't a company, they were the defendant,  
8 though. But in a PI case, that's true, I've  
9 testified for defendants on a small number of  
10 occasions in asbestos litigation.

11 Q. 99-point-something percent of your time  
12 is --

13 A. Plaintiffs' work.

14 Q. Plaintiffs' work.

15 You have done hundreds of reports  
16 for Mr. McCoy's firm over the years; is that right?

17 A. Not hundreds. I've never kept track. He  
18 would probably know better, but I would think it's  
19 probably bumping up near a hundred, maybe not even  
20 that many. Maybe 50, 75, something like that.

21 Q. Do you know how many reports you signed on  
22 the same day as the one in Suoja for Mr. McCoy's  
23 firm?

24 A. Oh, there were a lot. There was a whole  
25 bunch of cases, I guess, that came out of the MDL

1 that I reviewed and signed. I don't know, 20  
2 reports or something.

3 Q. It wouldn't be out of the ordinary for you  
4 with respect to your work for Mr. McCoy's firm to  
5 have certain days where you have signed off on 10  
6 or 20 reports in that day; is that fair?

7 A. Well, that was an unusual set of  
8 circumstances. What generally happens, as I do in  
9 every case with every attorney, I send them a  
10 draft. I do that not because they can change my  
11 opinions, but I do do work in many different  
12 jurisdictions and I don't know all the rules, and,  
13 you know, federal court is different from state  
14 court, you know, Texas is different from  
15 Philadelphia, Pennsylvania is different from  
16 California, so what gets said has to comport with  
17 the law, so -- and I don't know the law not being a  
18 lawyer, but I know the medicine.

19 So every lawyer gets a report, and  
20 what tends to happen is while I may have sent  
21 drafts over a period of time, they all get sort of  
22 reviewed and sent back at once, so I may sign a  
23 whole bunch of letters on one day, but that doesn't  
24 mean that they all were done that day; that's the  
25 day that they were finalized and signed off on.

1 Q. You have to sort of adjust the causation  
2 language depending on the jurisdiction; is that  
3 fair?

4 A. That's fair. And I would say 95 to  
5 98 percent of my letters come back fine as is, so  
6 having done this for a long time, I sort of know  
7 something about the various jurisdictions, but  
8 things change all the time and I just want to be  
9 sure I'm doing it right.

10 Q. Are you still at the level of generating  
11 about 400,000 to \$500,000 a year in billings for  
12 this type of work?

13 A. Last year was the highest that was ever  
14 generated, was 495. This year it will be closer to  
15 350, I think. So it's in that range if you average  
16 it out over the last few years.

17 Q. Okay.

18 A. Never as much as five, but probably between  
19 -- it's probably around 400, average.

20 Q. The amount of time that you spend on this  
21 work you've said is between 300 to 400 hours,  
22 correct?

23 A. Something like that. And it's probably  
24 gotten a bit -- you know, I don't know. I don't  
25 work a 40-hour week. I generally work at least a

1 55-hour week and sometimes 70 or 80 hours, and it's  
2 probably because of more depositions and more  
3 trials, it's gotten up to maybe 20 percent of my  
4 time, so I haven't done the math.

5 I have a one-hour minimum now. A  
6 file like this that was only 20 pages, it wouldn't  
7 have taken me an hour to read it, but I have --  
8 every lawyer I work with knows that I have a  
9 one-hour minimum for a report, and so that's why I  
10 can generate more money than the hours.

11 Q. Right. We've talked about that before.  
12 And you could do the math, if it's three to  
13 400 hours at the \$425 rate, it's between 127 to  
14 \$170,000?

15 A. Something --

16 Q. Something like that?

17 A. Something like that.

18 Q. And the income of or the revenue generated  
19 of 400 to 500,000 is based on that -- you know, the  
20 differential is that one-hour minimum?

21 A. Yes.

22 Q. And the majority of the cases that you have  
23 based on that math, they fall under the one-hour  
24 minimum?

25 A. Most of them do. Most of them are

1 mesotheliomas, it's not like I have to consider a  
2 huge differential diagnosis as to what caused the  
3 disease. If I have exposure to asbestos, as you  
4 asked me, and somebody has a mesothelioma, unless  
5 they lived or visited in Turkey or Sicily, it's  
6 pretty straightforward.

7 Q. I want to shift gears over to the causation  
8 sort of attribution opinions that I want to ask you  
9 about subject to my objections and what the Court  
10 rules about that.

11 Before I do that, the book that you  
12 wrote in the 1970s, I think it's No. 1 on your CV.

13 A. No, it's not No. 1. It's probably No. 5.  
14 It's the only book I wrote.

15 Q. Can I see it?

16 A. Sure.

17 Q. I'm sorry, I didn't bring it with me.

18 A. That's fine. (Hands document to counsel.)

19 Q. Yeah. Right, No. 5. It was published by  
20 the Matthew Bender --

21 A. Right. It's a medical/legal publishing  
22 house. That came about because I was a house  
23 officer. I wrote it when I was a resident at Mount  
24 Sinai. I got asked by a colleague whose wife  
25 worked at Matthew Bender knowing that I was headed

1 for an academic career and I was interested in  
2 cancer and occupational medicine, I was asked if I  
3 would write a book on occupational and  
4 environmental causes of cancer, which I did. The  
5 first volume was, I don't know, about 600 pages or  
6 so. There are some sections in there on legal  
7 matters, which I had nothing to do with, they were  
8 put in by the lawyers of Matthew Bender.

9 Q. Do you have any extra copies you can sell  
10 me?

11 A. For a price.

12 Q. Okay. Send me the quote.

13 A. You can probably get it from Matthew  
14 Bender. I mean, it's one of these looseleaf  
15 binders. I'm sure they've got some on their  
16 shelves. I have several copies of it from -- going  
17 back to the 1970s.

18 Q. The question I really wanted to ask you  
19 about was that in your CV, it says that the title  
20 of it is Cancer.

21 A. It is.

22 Q. Is there -- is it called Cancer Courtroom  
23 Medicine; is that the title of it?

24 A. No. The series of books that it's in is  
25 called Courtroom Medicine and there are many



1 different volumes; there's one on shoulder  
2 injuries, there's one on trauma, there's one on --  
3 you know, different doctors have written things.  
4 So the series was called Courtroom Medicine, the  
5 title of mine in that series is called Cancer.

6 Q. Okay. Thank you.

7 A. I forget, lawyers needed to know about that  
8 subject as much as anybody else.

9 I did make one serious mistake with  
10 it.

11 Q. What's that?

12 A. I took a flat sum instead of taking the  
13 royalties. It turns out it was a pretty good  
14 seller and I probably would have made more money  
15 with the royalties.

16 Q. Good lesson.

17 You touched on this towards the end  
18 of your direct examination, but essentially it's  
19 your opinion that the only exposure that a person  
20 has that is not causative in their asbestos-related  
21 disease is the exposure that they didn't have it?

22 A. Right. If they didn't have it, it couldn't  
23 cause it.

24 Q. But if they have an exposure, no matter how  
25 slight, no matter how minimal, your opinion is that

1 that is part of the cause of the disease?

2 A. It's part of their cumulative exposure.

3 Q. And thus the cause?

4 A. And thus the cause because it is the  
5 cumulative exposure that is the cause.

6 Q. And that's true in your mind and in your  
7 opinion even for a single exposure on a single day?

8 A. Well, let me give you sort of an example  
9 that illustrates that.

10 Q. I would first appreciate if you give me the  
11 answer.

12 A. The answer is yes.

13 Q. Okay.

14 A. And to illustrate that, let's say somebody  
15 decides as a young person to smoke cigarettes, and  
16 there are a million brands of cigarettes and let's,  
17 for argument sake, say one cigarette -- you know,  
18 no matter how slight, one cigarette can't cause  
19 lung cancer. We'll take that as a starting point.  
20 And there is a million brands of cigarettes and  
21 they start smoking, and every time they light a  
22 cigarette, they smoke one each of a different brand  
23 of cigarettes, and at the end of their life,  
24 they've smoked one each of a million brands of  
25 cigarettes and they get lung cancer. Now, you

1 either have to say none of them did it because it  
2 was only one of each brand or you have to say the  
3 cumulative exposure did it. And I'm of the school  
4 that says the cumulative exposure, one at a time a  
5 million times, is what did it, and I can't leave  
6 any one of them out. That doesn't mean in some  
7 legal settings that might not happen, but  
8 medically, scientifically, every exposure  
9 contributes to the totality of the exposure.

10 Q. You can't disaggregate those exposures?

11 A. Of course not. There's no scientific way  
12 to do that.

13 Q. And you can't say that one was  
14 insubstantial and one was substantial?

15 A. They were all substantial scientifically.

16 Q. The hypothetical that Mr. McCoy gave you  
17 where he used the -- I think he used pipe covering  
18 as his example. Do you recall that?

19 A. Yes, sir.

20 Q. Your opinion would be the same whether the  
21 product that he put in that hypothetical was cement  
22 -- asbestos cements?

23 A. Sure, or any other products.

24 Q. Right. Any product I could come up with  
25 that's asbestos, if I plug that into the

1 hypothetical --

2 A. You'd get the same answer.

3 Q. Thank you.

4 MR. McCOY: Let me object to that  
5 question. And I can tell you what my objection is,  
6 Ed.

7 MR. CASMERE: Go ahead.

8 MR. McCOY: My objection is, I mean,  
9 the pipe covering -- Kaylo is an example of pipe  
10 covering, but also the mud goes on top of it and  
11 covers the pipe too, so that was my basis for my  
12 objection is, those are really both forms of pipe  
13 covering. Go ahead.

14 I don't know if that changes your  
15 question.

16 MR. CASMERE: I don't think it  
17 changes my question nor do I think it changes Dr.  
18 Frank's answer.

19 MR. McCOY: Right. Okay.

20 BY MR. CASMERE:

21 Q. The affidavit that you referenced was  
22 signed June 21, 2012?

23 A. Yes, sir.

24 Q. You didn't prepare that for this case?

25 A. No, it's a generic affidavit that I've used

1 in other cases. And I have a more recent one,  
2 actually.

3 Q. Right.

4 MR. McCOY: That recent one was  
5 provided to you also, Ed, about --

6 BY MR. CASMERE:

7 Q. That's a 66 page one?

8 A. Yes.

9 Q. That was also not prepared for just this  
10 case?

11 A. Correct. It was not prepared for any  
12 specific case. I get asked all the time about  
13 what's the basis of my opinions, and that's a good  
14 starting point for the basis of my opinions.

15 MR. McCOY: For the record, that's  
16 the one I sent you, I think it was the November 18,  
17 2013 version.

18 BY MR. CASMERE:

19 Q. I want to shift gears one more time and  
20 talk to you a little bit about sort of the  
21 state-of-the-art opinions that you were giving.  
22 Okay?

23 A. (Nods.)

24 Q. In your report you have a single sentence,  
25 it's the second to last sentence of the report that

1 says, The hazards of asbestos have been known for  
2 more than a century and the need to protect  
3 individuals written about some 80 years ago,  
4 correct?

5 A. Correct. And I cited both of those in the  
6 direct testimony, the report from Great Britain in  
7 the late 1890s, it was 1898 or '99, her Majesty's  
8 Inspectorate of Factories report, and some 80 years  
9 ago, the first Merewether and Price.

10 Q. The Merewether and Price 1930 article  
11 included information about the methods to reduce  
12 and control exposures, correct?

13 A. Yes, sir.

14 Q. That was also an article that was written  
15 about the studies that were done in the asbestos  
16 textile factories in the United Kingdom?

17 A. Yes.

18 Q. That article was then quoted and cited and  
19 referred to in 1930 in the Asbestos Workers  
20 Journal, correct?

21 A. I wasn't aware of that.

22 MR. CASMERE: I'm going to mark this  
23 as -- I guess we'll do Defense Exhibit 1 for the  
24 deposition.

25 - - -

1 (Whereupon, Exhibit D-1, The  
2 Asbestos Worker, September 1930 article, Volume 9,  
3 No. 9, was marked for identification.)

4 - - -

5 MR. McCOY: So I have an objection  
6 to foundation and relevance on that. Well, I guess  
7 we've agreed relevance objections can be held.  
8 Certainly foundation is my objection. And also, I  
9 guess, hearsay-type objection here.

10 BY MR. CASMERE:

11 Q. You're familiar with the Asbestos Worker  
12 Journal, correct?

13 A. I'm familiar that the union had a journal.  
14 I didn't know how far back it went, but I knew  
15 about it from the time I started with Selikoff in  
16 the 1960s. I didn't know retrospectively how far  
17 back it went, which is why I answered you the way I  
18 did.

19 Q. Sure. I'm not trying to chastise you for  
20 not --

21 A. No.

22 Q. -- knowing about this.

23 A. I'm not taking it as such.

24 Q. Okay. But I do want to establish that you  
25 are aware that there was such a thing called the

1 Asbestos Worker Journal that was sent to the  
2 members of the asbestos workers union, correct?

3 A. Correct. I can't speak to what any  
4 individual union member may or may not have read or  
5 seen, but a lot of things were in the journal that  
6 I'm not necessarily aware of. And even the ones  
7 I'm aware of, I can't speak to what everybody knew.

8 Q. The work that you did with Dr. Selikoff in  
9 the 1960s, some of that work appeared in the  
10 Asbestos Worker Journal in the 1960s and --

11 A. '60s and '70s, yeah. The green sheets were  
12 sent out in the '70s.

13 Q. So in essence, you have had a hand in work  
14 that has been published in that journal?

15 A. You can say that. I wouldn't go quite that  
16 far, but, okay.

17 Q. You don't have to be shy about it.

18 A. Okay. I mean, I worked on the studies that  
19 Dr. Selikoff was regularly reporting about.

20 Q. And some of those got published in the  
21 Asbestos Worker Journal?

22 A. The findings, yes.

23 Q. In 1930, the Asbestos Worker Journal on  
24 Page 9 of the September 1930 edition has an article  
25 called The "Pulmonary Asbestos" Menace, correct?



1 A. Yes.

2 Q. This is a report about asbestos among  
3 people working with asbestos, correct?

4 A. Yes.

5 Q. And have you ever seen this before?

6 A. I have not. Brand new to me.

7 Q. All right.

8 A. Thank you for bringing it to my attention,  
9 actually.

10 Q. Would you like an extra copy for your  
11 records?

12 A. Yeah, I would.

13 Q. Sure.

14 MR. McCOY: Can I have one?

15 MR. CASMERE: Maybe.

16 THE WITNESS: I'll make a copy  
17 later.

18 MR. McCOY: Which page are we on?

19 THE WITNESS: Nine.

20 BY MR. CASMERE:

21 Q. This is my last one, so you can have that.

22 The asbestos workers union in 1930  
23 had included a publication about the hazards of  
24 asbestos and the disease asbestosis as of 1930,  
25 correct?

1 A. Yes.

2 Q. All right. That is following up on the  
3 Merewether and Price article that was published  
4 earlier that year, correct?

5 A. Actually, it talks about Dr. Oliver who had  
6 a textbook about that time. I don't see where they  
7 specifically mention Merewether and Price.

8 Q. You see that they do talk about studies in  
9 the United Kingdom textile industry. Do you see  
10 that in there?

11 A. I'm looking. No, they're quoting Sir  
12 Thomas Oliver, but it's the same industry.

13 Q. Fair enough.

14 A. I mean, I'll give you that.

15 Q. Fair enough.

16 A. It's not Merewether and Price, but it's  
17 Oliver. He was another British physician doing  
18 occupational medicine.

19 Q. Do you see the part on the next page, Page  
20 11, that I've highlighted there?

21 A. Yes.

22 Q. Where at the very top there were three  
23 cases in which continued exposure to high  
24 concentrations of the dust the fibrosis may be  
25 fully developed in seven to nine years, while with

1 milder degrees of exposure it may take from 15 to  
2 25 years to develop fully.

3 A. Yes.

4 Q. That's also what is cited in Merewether's  
5 report, correct, the seven to nine years?

6 A. I don't recall that specifically, it's  
7 about an 80-page document, but it's probably from  
8 Oliver's report and he may have been quoting  
9 Merewether and Price.

10 Q. All right. They also discuss in the next  
11 paragraph that the report which they're referring  
12 in this journal, that special exhaust ventilation  
13 is necessary to remove dust in these industries,  
14 especially in the processes of spinning and  
15 weaving. The recommendations in the report include  
16 the application of efficient localized exhaust  
17 ventilation at dust-producing points; the  
18 substitution of enclosed mechanical methods for  
19 hand conveyance and for dusty handwork generally;  
20 the effective enclosure of dust-producing machines  
21 and plant; the substitution of wet methods for dry.

22 Do you see that?

23 A. I do.

24 Q. That's the same type of recommendations  
25 that Dr. Merewether made in his 1930 report about

1 how to reduce exposures, correct?

2 A. Yes.

3 Q. And those are the same recommendations that  
4 were discussed in 1938 by Dr. Dreessen with the  
5 U.S. Public Health Service, correct?

6 A. Yes.

7 Q. And that's the Public Health Service  
8 Bulletin 241 that was published in 1938, correct?

9 A. Yes.

10 Q. Dr. Dreessen reported on textile industry  
11 exposures in the United States similar to what  
12 Dr. Merewether did in the United Kingdom?

13 A. Yes.

14 Q. He reported that you could get asbestosis  
15 from overexposure to asbestos?

16 A. Right.

17 Q. He also reported on those same methods to  
18 reduce exposures, correct?

19 A. Yes.

20 Q. All right. Those methods to reduce the  
21 exposures that we talked about were also  
22 incorporated into the Walsh-Healey in 1951 that was  
23 adopted by the federal government, correct?

24 A. People have told me that; I have never read  
25 it. I have no reason to doubt that you're correct

1 about it. I'm not going to disagree with you; I  
2 just have no independent knowledge of it.

3 MR. CASMERE: Let's mark this as  
4 Defense Exhibit No. 2.

5 BY MR. CASMERE:

6 Q. I'll give you the highlighted copy to make  
7 it easier for you and we'll mark a clean copy for  
8 the --

9 A. Judge.

10 Q. Yeah.

11 - - -

12 (Whereupon, Exhibit D-2, Safety and  
13 Health Standards for Contractors performing Federal  
14 Supply Contracts under the Walsh-Healey Public  
15 Contracts Act, United States Department of Labor,  
16 1952, was marked for identification.)

17 - - -

18 BY MR. CASMERE:

19 Q. If you just turn to the second tab there  
20 that I have highlighted.

21 A. Yes, sir. It's Page 24.

22 Q. Right. First of all, they -- the  
23 Walsh-Healey Act adopts the ACGIH's TLV for  
24 asbestos of 5 million particles per cubic foot,  
25 correct?

1 A. They do.

2 Q. And that's under the mineral dose category?

3 A. Yes.

4 Q. Then the next page there, they have the  
5 methods to reduce exposures?

6 A. Right. Local exhaust ventilation, personal  
7 protective equipment. They discuss those.

8 Q. Same things as Merewether was discussing in  
9 1930, same thing that Dr. Dreessen was discussing  
10 in 1938, correct?

11 A. Correct.

12 Q. Are you aware that the Wisconsin Industrial  
13 Commission had similar provisions as early as 1947?

14 A. Not especially. I know some state -- if  
15 you recall my testimony before, some states did  
16 have rules or adopted the ACGIH recommendations. I  
17 don't know which ones. There were a lot of them.

18 Q. Okay. You are familiar with what's known  
19 as the grim reaper advertisement in the Asbestos  
20 Worker Journal in 1961?

21 A. I've seen it, yes.

22 MR. CASMERE: Let's mark this as  
23 Exhibit No. 3.

24 - - -

25 (Whereupon, Exhibit D-3, The

1 Asbestos Worker Journal, November 1961, was marked  
2 for identification.)

3 - - -  
4 BY MR. CASMERE:

5 Q. It's the back flap, the last page.

6 A. Okay.

7 Q. This is the November 1961 Asbestos Worker  
8 Journal, correct?

9 A. I believe so.

10 Q. There's a young -- a little girl saying a  
11 prayer before Thanksgiving turkey?

12 A. Turkey, right.

13 Q. You have seen this or have been shown this  
14 before, correct?

15 A. Yes.

16 Q. All right. In 1961, the Asbestos Workers  
17 Journal, the union publication for the asbestos  
18 workers had the advertisement or this publication,  
19 which was a grim reaper -- that had a picture of  
20 the grim reaper one on one side and a man's family  
21 at the beach on the other saying, Is your future  
22 with him or them, wear your respirator, correct?

23 A. That's what it says.

24 Q. Your work with Dr. Selikoff revealed that  
25 even though there was information that Dr. Selikoff

1 was publishing in the Asbestos Worker Journal, even  
2 though there was publications like this 1961 ad in  
3 the Asbestos Worker Journal in 1961, and even  
4 though Dr. Selikoff met with and spoke with  
5 insulators, including at their annual conference,  
6 that as late as 1968 and 1969, the respirator use  
7 among insulators was 30 percent or lower?

8 A. I don't know that number. Again, I have no  
9 reason to -- I have no basis to disagree with you.  
10 And if you have data on that --

11 MR. McCOY: I'll object to  
12 foundation for this witness.

13 MR. CASMERE: I'll give you the  
14 foundation for it. Since I have all this stuff  
15 with me, we might as well use it.

16 THE WITNESS: Haul less home.

17 MR. CASMERE: Right. The May 1969  
18 Asbestos Worker Journal we'll do as Exhibit 4.

19 - - -

20 (Whereupon, Exhibit D-4, Asbestos  
21 Journal, May 1969, was marked for identification.)

22 - - -

23 BY MR. CASMERE:

24 Q. And I've tabbed the page for you there.

25 A. Thank you, sir.



1                   MR. McCOY: The same objection to  
2 foundation with this witness.

3                   THE WITNESS: Actually, the numbers  
4 are worse than what you gave me.

5 BY MR. CASMERE:

6 Q.           What is?

7 A.           You said 30 percent use them. It says here  
8 four percent said they always wear a mask and  
9 30 percent said they never used protection. I  
10 guess that means 70 percent used them some time,  
11 but...

12 Q.           That's what he, Dr. Selikoff, was reporting  
13 to the asbestos workers in their journal, correct?

14 A.           If he wrote the article, I guess it was, or  
15 Nicholson.

16 Q.           Whoever wrote it --

17 A.           Yeah, it was Dr. Nicholson and Mr. Holaday,  
18 H-O-L-A-D-Y -- D-A-Y.

19                   MR. McCOY: Same foundation and  
20 hearsay objection.

21                   THE WITNESS: Anyway, it said it  
22 wasn't used on a regular basis by everybody.

23 BY MR. CASMERE:

24 Q.           You are also aware that the seminal  
25 publication by Dr. Selikoff in 1964 that you

1 mentioned earlier was published in the 1964

2 Asbestos Workers Journal, correct?

3 A. Yes, sir.

4 Q. The journal republished Dr. Selikoff's 1964

5 article in its entirety?

6 A. I believe I have seen that.

7 Q. You certainly think -- I'm sorry.

8 You certainly would be of the  
9 opinion that the work of Dr. Selikoff is reliable  
10 and authoritative in the field of asbestos  
11 research?

12 A. For the most part, yes.

13 Q. And the fact that the Asbestos Worker  
14 Journal was republishing that was a good thing to  
15 do, correct?

16 A. Yes.

17 Q. And in terms of information getting sent  
18 out to asbestos workers through their union about  
19 the health hazards of asbestos, it would be your  
20 opinion that the Asbestos Worker Journal was a  
21 reliable source of information for those  
22 individuals?

23 MR. McCOY: Objection to foundation.

24 THE WITNESS: I can't really speak  
25 to that because I've not studied what's in the

1 journal. Anything that they published or  
2 republished of Dr. Selikoff's I would take to be  
3 accurate. I can't speak to anything else.

4 BY MR. CASMERE:

5 Q. The asbestos workers union, actually, it  
6 hired Dr. Selikoff to start doing his research in  
7 the late 1950s and through the 1960s, which  
8 culminated in his study in 1964, correct?

9 A. I don't know if they hired him. I think  
10 they supported his research, but I don't think they  
11 hired him. I don't think he was on the payroll of  
12 the union.

13 Q. Fair enough. That's probably a bad choice  
14 of words on my part, but they supported his  
15 research?

16 A. Sure, and he clearly worked with the union.  
17 And to this day, you know, there are still members  
18 of the union that I see on a regular basis and  
19 interact with over issues about asbestos.

20 Q. Have you seen the 1957 Asbestos Worker  
21 Journal where they talk of the knowledge of health  
22 hazards of asbestos?

23 A. Not that I recall.

24 Q. Or the 1961 or 1962 or 19 -- other  
25 publications from the Asbestos Worker Journal in

1 the '60s where they talked about it?

2 A. I haven't seen them and I can't speak to if  
3 Mr. Suoja ever saw them.

4 MR. McCOY: Same objection as to  
5 foundation. And, again, our relevance objections,  
6 we're preserving those and they are not being  
7 stated on the record each time.

8 BY MR. CASMERE:

9 Q. Let me just see if I want to show you one  
10 more or not. Let's not do that.

11 A. Okay.

12 Q. We've covered enough of that, I think.

13 A. Your point has been made, I think. May I  
14 keep this?

15 Q. Yes, sir.

16 MR. McCOY: My objections to these  
17 documents that you've used here for the purposes of  
18 admission are the same ones I've been making for  
19 the questioning here, which is lack of foundation  
20 and, particularly, these are hearsay, and like I  
21 said, later we'll have the relevance issues.

22 BY MR. CASMERE:

23 Q. You mentioned Dr. Hueper. You're familiar  
24 with the publications of Dr. Hueper over the years?

25 A. Yes.

1 Q. You consider him a reliable and  
2 authoritative source of information about asbestos,  
3 do you not?

4 A. For the most part.

5 Q. You're aware that in the 1940s, 1950s, and  
6 even through the early 1960s, Dr. Hueper was  
7 publishing the opinion that asbestosis was a  
8 prerequisite for the development of lung cancer and  
9 mesothelioma, correct?

10 A. Which was a mistake he made because the  
11 people who were getting lung cancer in those days  
12 were the ones that had the heaviest exposures who  
13 also had asbestosis, you know. So in retrospect,  
14 it turns out to be wrong, but that's what he  
15 thought at the time. Others have thought that and  
16 still write about that, but the data no longer  
17 supports that.

18 Q. Doll had said similar things because the  
19 people he studied all had asbestos who also had  
20 lung cancer?

21 A. Well, he was studying factories from the  
22 '30s to the '50s and they all had very high  
23 exposures, including unreported cases, at least  
24 unreported in the scientific literature, of  
25 mesotheliomas going back to 1928 that never get

1 into the literature.

2 Q. There are editorials and articles in the  
3 Journal of the American Medical Association, JAMA,  
4 from the '40s and '50s where that sentiment is  
5 expressed that asbestosis is necessary for the  
6 development of an asbestos-related lung cancer,  
7 correct?

8 A. Yes.

9 Q. As you pointed out, that was based on the  
10 evidence they had at time, which in retrospect  
11 turns out probably to be inaccurate?

12 A. Right. One of the things I've learned as a  
13 physician is that things that you're even taught as  
14 causative turn out to have no relationship  
15 whatsoever. Probably the classic example I think  
16 of is ulcers when they said it was caused by stress  
17 and it turns out most ulcers are caused by a  
18 bacteria found in the stomach, which actually  
19 earned somebody a Nobel Prize.

20 Q. I think the last thing I want to ask you  
21 about is what you said about Dr. Stokinger and the  
22 TLV.

23 A. 1956.

24 Q. Yeah, I have that here. I don't leave home  
25 without it.

1 MR. CASMERE: We'll mark this as 5.

2 - - -

3 (Whereupon, Exhibit D-5, American  
4 Industrial Hygiene Association, Quarterly,  
5 September 1956, was marked for identification.)

6 - - -

7 BY MR. CASMERE:

8 Q. I've handed you the pages from the American  
9 Industrial Hygiene Association, Quarterly,  
10 September 1956, correct?

11 A. Yes, sir.

12 Q. This is the reference that you made earlier  
13 to Dr. Stokinger in '56 talking about his safety  
14 factor --

15 A. Yes.

16 Q. -- right?

17 And he has some prepared discussion  
18 that is on Page 284 to 286, correct?

19 A. Right.

20 Q. That's where he talks about what he calls,  
21 quote, Levels for Cancerigens, right?

22 A. Yes.

23 Q. And that's what you're referring to in  
24 terms of the safety factor from 1- to 500, right?

25 A. Right. It says, The magnitude of the

1 safety factor is suggested to be from 100 to 500  
2 when talking about cancer-causing agents.

3 Q. In that article does he mention asbestos as  
4 being a cancer-causing agent?

5 A. I don't see where he mentions it  
6 specifically here.

7 Q. If you turn to the other -- if you look at  
8 the front page that I gave you.

9 A. Right.

10 Q. It's the --

11 A. Page 340 now.

12 Q. Right. So 340 is some other prepared  
13 remarks from Dr. Stokinger in the same journal,  
14 correct?

15 A. Apparently. I mean, it's -- or a paper. I  
16 can't tell if it's -- he gave him his remarks.

17 Q. Fair enough. I'm sorry.

18 Page 342 --

19 A. Yes.

20 Q. -- he talks about Doll.

21 A. Yes.

22 Q. And so clearly, he's read Doll by this  
23 point in time, in 1956, right?

24 A. It's a year later.

25 Q. Right. And when he says there after



1 discussing Doll that, With such relatively small  
2 numbers of cases, one must be extremely cautious in  
3 drawing the conclusion of a causal relationship  
4 between exposure and the disease, correct?

5 A. That's what he writes, but the sentence  
6 just before that was, Seven cases of lung cancer  
7 were found among asbestos miners with no  
8 asbestosis.

9 So we have the beginnings of the  
10 correction of science here.

11 Q. Right. And below that, he says, Before a  
12 final decision is reached, it would seem well to  
13 wait until a more impressive number of cases has  
14 been documented. Moreover, it seems to this author  
15 that the question of the nature of the asbestos in  
16 different localities and the associated minerals  
17 such as chromium and nickel, both recognized  
18 cancerigens, seem to have been too little  
19 considered. Asbestos is a fibrous form of several  
20 different species of mineral, a point commonly  
21 disregarded. Correct?

22 A. That's what it says.

23 Q. So he says there we need more information  
24 about asbestos before we can draw these  
25 conclusions?

1 A. That was his opinion, though Doll had  
2 reached the opinion that, as did Hueper in 1942,  
3 that asbestos caused lung cancer.

4 Q. But you mentioned earlier specifically  
5 referring to Dr. Stokinger, so I wanted to --

6 A. Right.

7 Q. -- present you with what his remarks were  
8 in 1956. Would you --

9 MR. McCOY: Is that being offered as  
10 an 80318 publication?

11 MR. CASMERE: Yeah, all of these.

12 MR. McCOY: Okay.

13 MR. CASMERE: Yeah. All of these  
14 are.

15 BY MR. CASMERE:

16 Q. And have you seen the affidavit that  
17 Dr. Stokinger executed years ago?

18 A. No, I've never seen that.

19 Do you want that marked.

20 Q. Yeah.

21 MR. CASMERE: Let's mark it as 6.

22 - - -

23 (Whereupon, Exhibit D-6, Affidavit  
24 of Herbert E. Stokinger, was marked for  
25 identification.)

— — —

MR. McCOY: So my objection to that is hearsay; lack of foundation for this witness.

BY MR. CASMERE:

Q. You know Dr. Richard Lemon, correct?

A. Yes.

Q. You're friends with him, right?

A. Yes.

Q.       Feel free to call him and ask him if this is Herb Stokinger's signature because he confirmed it for me in a deposition years ago.

A. I have met Dr. Stokinger. I actually visited with him, but I don't know what his signature looks like.

Q. All right. So what did Dr. Stokinger say in his affidavit about whether or not the TLV for asbestos was thought to protect against any cancer from asbestos?

MR. McCOY: I'll have a continuing objection here on foundation and hearsay grounds.

MR. CASMERE: Sure.

THE WITNESS: I'll read No. 11. I assume that's what you're referring to.

BY MR. CASMERE:

Q. Yes, sir, that's good enough.

1 A. There was no separate asbestos threshold  
2 limit for cancer since it was believed by the TLV  
3 Committee at the time that cancer was considered,  
4 1964, that it did not occur without the presence of  
5 asbestosis and, therefore, the established  
6 threshold limit value adequately protected against  
7 cancer.

8 Q. Is that your understanding of what  
9 Dr. Stokinger's views were about that issue?

10 MR. McCOY: Objection.

11 THE WITNESS: Well, the document  
12 speaks for itself, but in his '56 paper that we  
13 just tabbed as D-5, what he says was he had a  
14 number of cases without asbestos, so one could say  
15 that they were ignoring some of the very evidence  
16 in front of them that they already understood.

17 BY MR. CASMERE:

18 Q. Or one could say that perhaps what they  
19 thought previously turned out to be inaccurate when  
20 they got more information; true?

21 A. One could say that as well.

22 MR. CASMERE: I think I'll stop  
23 there. Thank you, Doctor.

24 THE WITNESS: You're very welcome.

25 MR. McCOY: Just a couple questions

1 I have in follow-up.

2 - - -

3 REDIRECT EXAMINATION

4 - - -

5 BY MR. McCOY:

6 Q. Dr. Frank, there were some questions about  
7 the work that you had done for my law firm, Cascino  
8 Vaughan Law Offices. Is it accurate to say that in  
9 all of the individual cases for which you provided  
10 a report that you had information from medical  
11 records and work history of the clients on which to  
12 base the reports?

13 A. I had medical records, work history, death  
14 certificates, all the things that would be required  
15 for me to render such a report.

16 Q. And in recent cases, you had also designed  
17 a questionnaire and asked my firm to follow that  
18 questionnaire in terms of giving you more  
19 information for evaluating the case; is that right?

20 A. This was on the subject of lung cancer,  
21 yes, not for mesothelioma.

22 Q. There was some questions asked about the  
23 mucin-producing statement in the -- was it the  
24 pathology report of Mr. Suoja?

25 A. Yes, sir.

1 Q. Okay. How is that or how does that factor  
2 into your thinking in this case as to whether the  
3 condition of mesothelioma is asbestos related?

4 A. That was done on a frozen section, that's  
5 done without stains, it's done very quickly while  
6 the patient is literally still on the operating  
7 table, and the diagnosis very often changes from  
8 that. And, in fact, mesothelioma was considered in  
9 the final tissue analysis, which takes several days  
10 to process, stain, look at, led to the diagnosis of  
11 mesothelioma. So it doesn't change my opinion the  
12 fact that it was considered at the time of the  
13 surgery or laparoscopy with a frozen section  
14 evaluation.

15 Q. Okay. And so this is actually in the  
16 records and is something, then, that was also taken  
17 into account by the pathologist who rendered the  
18 final diagnosis?

19 A. Yes, sir.

20 Q. And that pathologist was from the hospital  
21 or clinic that was actually treating Mr. Suoja; is  
22 that right?

23 A. Yes.

24 Q. There was some discussions here about, I  
25 think, your opinion on the cumulative exposures.

1 Has that word been used by other scientist in  
2 assessing causation?

3 A. Absolutely.

4 Q. Okay. I think you had the two articles  
5 here that we talked about earlier. One was  
6 Exhibit 203 on --

7 A. Hillerdal?

8 Q. This is the Hillerdal.

9 A. He talks about cumulative exposure.

10 Q. Okay. I was just going to say I had a copy  
11 of his article here. And I had just pulled up the  
12 computer and did a word search on this,  
13 "cumulative" within his article. So I see it here  
14 one time and what is he saying?

15 A. Talks about cumulative exposure from the  
16 history.

17 Q. Okay.

18 A. I can't read it all from here.

19 Q. Let me move it a little closer to you.

20 Okay. What does he say there?

21 A. Thus with so-called non-occupational  
22 exposure, the typical exposure is low or very low,  
23 almost unmeasurable background concentration, but  
24 occasionally high exposure when there is a  
25 disturbance of some kind. It follows, firstly,

1 that retrospective estimation of cumulative  
2 exposure from history alone is an impossibility in  
3 most cases; but secondly, and perhaps more  
4 importantly, that any person living or working in,  
5 or even temporarily visiting, buildings where  
6 asbestos has been used in construction or otherwise  
7 might have been exposed to high concentrations of  
8 airborne asbestos fibers once or many times in  
9 their lives, and in most instances, unknowingly.

10 Q. I'll let you keep clicking the mouse there.  
11 Are there other references to cumulative, then, in  
12 there?

13 A. Yes.

14 Q. Okay. Is there another reference?

15 A. Yes, just a moment.

16 Q. Can you read us that second reference?

17 A. A better way of estimating lifelong  
18 exposure might be analysis of fibers in the lungs,  
19 but as already mentioned, fibers do clear from the  
20 lungs. How big the difference is in clearance are  
21 between people is unknown. Thus, the correlation  
22 between lifetime cumulative exposure and fiber  
23 concentration in the lungs is not excellent, but  
24 the findings from the lungs probably give a better  
25 estimation of exposure than even a careful



1 retrospective analysis of the patient's history, at  
2 least in low grade exposure.

3 Q. Is that discussion about, he says "lifetime  
4 cumulative exposure," the same as what you're  
5 referring to in your report?

6 A. Yes, sir.

7 Q. Okay. Go ahead and see if there's any  
8 other references in there. Just click that mouse.

9 A. Although the background, hardly --

10 Q. Is this the third reference?

11 A. The third reference.

12 Q. Okay. Read that.

13 A. Although the background, hardly measurable,  
14 concentrations of fibers in the air cannot be  
15 completely dismissed, the cumulative risk of these  
16 exposures is probably minor. And what is more,  
17 there is no way to reduce those concentrations.

18 So, again, he's referring to  
19 cumulative exposure. And I think that's it.

20 Q. And that's how he's assessing mesothelioma  
21 or cases is based on these cumulative exposures?

22 A. And that's what all scientists are supposed  
23 to do.

24 Q. And that's a peer-reviewed publication in  
25 Occupational and Environmental Medicine in 1999,

1 right?

2 A. Yes, sir.

3 Q. Okay. Now, let's take a look at the  
4 Greenberg publication, which is Plaintiff's  
5 Exhibit 202 for a moment. I did the same thing  
6 there and set up a word search.

7 Would you click the mouse and see if  
8 you find "cumulative" in that publication?

9 A. Yes.

10 Q. Okay. What does Greenberg say about  
11 cumulative?

12 A. They're talking about the duration in  
13 intermittent exposure is presented as a cumulative  
14 figure. That was what they say. So they, too,  
15 looked at this concept of cumulative exposure.

16 Q. And that's another peer-reviewed  
17 publication?

18 A. Yes, sir.

19 Q. If we went through all the literature,  
20 would there be other examples of scientists who  
21 look at causation for asbestos in mesothelioma as  
22 function cumulative lifetime exposures?

23 A. Absolutely. That's what all those other  
24 publications I talked about, LeCourt, Rodelsberger,  
25 Iwatsubo, that's exactly what they were doing,

1 lifetime cumulative exposure.

2 Q. In the course of the follow-up of the -- I  
3 think you said a group of 17,000 insulators?

4 A. 17,800, yes.

5 Q. Okay. Was there any of these insulators  
6 who had, to your knowledge, in this group,  
7 expressed that they were -- and this is in response  
8 -- I ask this question only as a follow-up to what  
9 I think is objectionable testimony that Mr. Casmere  
10 had or documents, but -- let me start that question  
11 again.

12 In the course of your work with this  
13 group of 17,000 insulators, was there ever someone  
14 who said that, oh, gee, I read Dr. Selikoff's  
15 article, and by 1970, I was -- when I read that, I  
16 was persuaded that I had to wear a mask to protect  
17 myself?

18 MR. CASMERE: Objection to form;  
19 foundation; argumentative.

20 THE WITNESS: I've never heard that  
21 -- I'll leave it at that. I've never heard that.

22 BY MR. CASMERE:

23 Q. There was a question about Dr. Hueper and  
24 some other authors about whether asbestosis being  
25 -- is being a prerequisite for diagnosing

1 mesothelioma.

2 A. No, it was about lung cancer.

3 Q. About lung cancer?

4 A. It was only about lung cancer. Nobody has  
5 ever said -- nobody has ever written that  
6 asbestosis is a prerequisite for mesothelioma.

7 Q. I was going to ask you, then, in the  
8 Helsinki Criteria on mesothelioma, is there any  
9 mention of needing asbestos?

10 A. Absolutely not.

11 Q. There was reference to Dr. Stokinger's  
12 article, and I think that was marked as a Defendant  
13 exhibit now.

14 A. Yes.

15 Q. Okay. So what I'd like to do is to turn to  
16 the discussion that Dr. Stokinger had that you were  
17 referring to about the safety factor for  
18 carcinogens.

19 A. Right.

20 Q. Okay. And by the way, this is a prepared  
21 discussion by Dr. Stokinger that was published in  
22 the Industrial Hygiene, Quarterly; is that right?

23 A. Yes.

24 Q. Okay. And he was, according to this  
25 prepared discussion, it says he is the chief

1 toxicological services and public health service  
2 out of Cincinnati, Ohio, right?

3 A. Yes.

4 Q. And what I wanted to do was to publish a  
5 couple portions of this relating to this comment  
6 you made. Okay? One second.

7 Okay. I have highlighted a couple  
8 sections.

9 A. Yeah.

10 Q. And I would like to have you go ahead and  
11 read those, and you can comment on anything else  
12 you want to too.

13 A. On Page 285, as a member of the Threshold  
14 Limits Committee, I was concerned over the  
15 statement and took the trouble to review each  
16 substance in the threshold limit list for 1955 as  
17 to the basis for the choice of level.

18 And this is referring to what some  
19 had said was an educated guess, which I think it  
20 often was.

21 Levels for Cancerigens,  
22 C-A-N-C-E-R-I-G-E-N-S, There is still one group of  
23 substances for which some methods should be devised  
24 for establishing safe air standards, the industrial  
25 cancerigens. How shall we establish the limits for

1 this type of substance? Thus far, the question has  
2 been sidestepped completely. As a result, with one  
3 exception, nickel carbonyl, limits taking into  
4 consideration potential cancerogenicity have not  
5 been assigned. Several industrial substances are  
6 known or suspected cancerigens; many more are  
7 suspect on the basis of animal experiments. As a  
8 suggested method of approach, the following is  
9 offered: To the level judged safe for other types  
10 of systemic injury add a safety factor for  
11 carcinogenicity. The magnitude of the safety  
12 factor is suggested to be from 100 to 500.

13 Q. Okay. So if at that time the limit that  
14 was being used by the Threshold Limit Value  
15 Committee and in other settings was the 5 million  
16 participants per cubic foot -- is that right?

17 A. Yes.

18 Q. Okay. What would that actually be if it  
19 was 100 to 500 times safety factor?

20 A. Five hundred times would bring it down to  
21 -- from 5 million to what? 100,000 or less.

22 Q. Okay.

23 A. A hundred thousand times five...

24 MR. CASMERE: Is 500,000.

25 THE WITNESS: Is 500,000. No, it

1 would be less than that. It would be under 100,000  
2 fibers instead of 5 million.

3 BY MR. CASMERE:

4 Q. And that sounds like to me or to some  
5 people that might sound like a lot of fibers.

6 A. Well, even now we have a level that's  
7 legally allowed under OSHA that's not safe, but  
8 still legally allowed, so these were, again,  
9 recommendations. And while it didn't mention  
10 asbestos specifically, it did talk about things  
11 that were known or suspected carcinogens, and  
12 that's the safety factor you should build in.

13 Q. What I'm getting at is although that sounds  
14 like a lot of fibers, what if you can actually see  
15 the dust in the air, what are you talking about  
16 there?

17 A. Then you're talking about much higher  
18 levels. It would be 10,000 fibers instead of --  
19 and you'd never see those.

20 Q. That would be the safety factor?

21 A. That would be the safety factor, 10,000  
22 fibers.

23 Q. When you say "you'd never see those," what  
24 do you mean?

25 A. I mean, that dissolve -- you know, in the

1 air in a --

2 Q. That number of fibers?

3 A. The fibers, you'd never see them.

4 Q. With the naked eye?

5 A. Correct.

6 Q. So if the conditions are described as  
7 dusty, what can you say about that exposure  
8 relative to these kinds of numbers?

9 A. That they're much higher.

10 MR. McCOY: That's all the questions  
11 I have, Doctor. Thank you.

12 THE WITNESS: You're welcome.

13 MR. CASMERE: What am I on,  
14 Exhibit 7 now?

15 THE WITNESS: Seven.

16 - - -

17 (Whereupon, Exhibit D-7,  
18 Occupational and Environmental Cancers of the  
19 Respiratory System by W.C. Hueper, 1966, was marked  
20 for identification.)

21 - - -

22 RECROSS-EXAMINATION

23 - - -

24 BY MR. CASMERE:

25 Q. I'll give you Exhibit 7 here, Doctor, with



1 a tab for you. I've handed you Exhibit 7, which is  
2 Occupational and Environmental Cancers of the  
3 Respiratory System by W.C. Hueper, correct?

4 A. Yes. That's his 1966 book, of which I own  
5 a copy.

6 Q. You own a copy?

7 A. Right.

8 Q. Okay. You think it's authoritative enough  
9 to own a copy?

10 A. Well, I bought it early in my career, and  
11 there's things in there I agree with and there's  
12 things in there I don't agree with, but I thought  
13 Hueper was a good enough scientist that I ought to  
14 have a copy of it. There's a number of  
15 pathologists, for example, whose books I don't own  
16 because I don't think they're worth owning.

17 Q. We'll not talk about those people right  
18 now.

19 A. That's fine.

20 Q. But this W.C. Hueper is the same Hueper  
21 we've talked about before, right?

22 A. Right.

23 Q. All right. What did he say in the  
24 highlighted section on Page 42 when talking about  
25 asbestos and carcinoma of the --

1 A. He contradicts my statement that I made  
2 before, I don't recall ever seeing this, but that's  
3 okay.

4 Q. But in 1966 --

5 A. He wrote --

6 Q. -- what did Hueper write?

7 A. And I'll read it: Since the presence of  
8 asbestosis has usually been considered the  
9 prerequisite for the subsequent development of a  
10 carcinoma of the lung or of a mesothelioma of the  
11 pleura or of the peritoneum, these deficiencies in  
12 the available information tend to impair a clear  
13 demonstration of the real scope of the existing  
14 association between the two conditions.

15 So what he's basically saying is  
16 that's what we used to think and it's not really  
17 what we ought to be thinking now.

18 MR. CASMERE: Thank you.

19 THE WITNESS: You're welcome. I'll  
20 waive reading and signing.

21 - - -

22 (Whereupon, the deposition of ARTHUR  
23 L. FRANK, M.D., Ph.D., was concluded at 11:18 a.m.)

24 - - -

25

C E R T I F I C A T I O N

I hereby certify that the proceedings and  
evidence noted are contained fully and accurately  
in the stenographic notes taken by me upon the  
foregoing matter on Wednesday, November 25, 2015,  
and that this is a correct transcript of the same.

Nicolle Joan Tornetta  
Court Reporter and Notary Public  
My Commission Expires:  
July 15, 2018

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